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Table of Contents.

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ORIGINAL ARTICLES— Page.
The Sir Richard Stawell Oration, by A. L. Kenny, C.B.E., M.B., Ch.B., F.R.A.C.S. .. 521
A Clinical Survey of Nine Cases of Encephalomyelitis in Association with Measles, by Melville E. Chinner, M.D., M.R.C.P. .. 526
The Effect of Glucose on Competitors in Sprint Swimming Races, by F. S. Cotton, D.Sc. .. 530
Treatment of Fracture or Dislocation of the Cervical Vertebræ, by R. Douglas Wright and J. Wunderly 532
Experiences in the High Ligation and Injection Treatment of Varicose Veins, by Norman Wyndham .. 534

REPORTS OF CASES—
Meningo-Encephalitis Complicating German Measles, by Alan B. S. Owen, M.B., Ch.M., M.R.C.P., and T. M. Greenaway, M.B., Ch.M., M.R.C.P., F.R.A.C.P. .. 536
Pneumococcal Meningitis Treated with Sulphapyridine, by R. F. Lowe, M.B., B.S. .. 536

REVIEWS—
Dermatology in General Practice .. 538
Clinical Electrocardiography .. 538
An Outline of Virology .. 538

LEADING ARTICLES—
Scepticism and Authority .. 539

CURRENT COMMENT—
Dental Disease in the Island of Lewis .. 540
Controlling the Acidity of the Urine .. 542
Genesis of Hydatidiform Mole .. 543
Œdema .. 543

ABSTRACTS FROM MEDICAL LITERATURE— Page.
Pathology .. 544
Morphology .. 545

SPECIAL ARTICLES ON PSYCHIATRY IN GENERAL PRACTICE—
Treatment by Prolonged Narcosis .. 546

BRITISH MEDICAL ASSOCIATION NEWS—
Scientific .. 547
Victorian Branch News .. 551

NAVAL, MILITARY AND AIR FORCE—
Appointments .. 552
Lectures in Adelaide to Army Medical Officers .. 552

CORRESPONDENCE—
Trigeminal Neuralgia .. 552
Problems Relating to the Supply of Medical Equipment .. 553
The Public and Nutrition .. 553

NOTICE .. 553

OBITUARY—
George Roebuck Woodhead .. 553

AUSTRALIAN MEDICAL BOARD PROCEEDINGS .. 553

NOMINATIONS AND ELECTIONS .. 554

MEDICAL APPOINTMENTS .. 554

BOOKS RECEIVED .. 554

DIARY FOR THE MONTH .. 554

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 554

EDITORIAL NOTICES .. 554

The Sir Richard Stawell Oration.[1]

By A. L. KENNY, C.B.E., M.B., Ch.B., F.R.A.C.S.,
Melbourne.

IN *King Henry the Fifth*, Exeter, Ambassador to King Charles of France, gives me my text: "You find him evenly derived from his most famed of famous ancestors."

In a study of a man who has made his mark in a community, it is most interesting to trace his descent by contemplating the history and character of those of his family who may have influenced his development. Such tracing is of great value and importance in the case of Sir Richard Stawell. His mother was persuaded by her children and relatives to prepare for private circulation in the family a record of her own and her husband's emigration to Australia in 1842 and of their early life there. It has been a greatly valued privilege to be allowed to peruse it. I feel impelled to share that privilege with you. Incidentally and very naturally, there is given an account of the family relationships of William Stawell and of the Greenes (Lady Stawell's family). We learn that the Stawell pedigree can be traced back in a direct line to a Sir Geoffrey de Stawell in the twelfth century; on the occasion of Sir William Stawell's death, the late Mr. Murray Smith, a former agent-general, writing to the late Mr. William Stawell, brother of Sir Richard, stated that "such a descent is a rich inheritance". Sir William's father was Mr. Jonas Stawell, of Old Court in County Cork, a good classical scholar and a great lover of Greece—so much so that he had a peninsula made in the stream running through his property, which he called Greece, and on which all the principal towns and the sites of the great battles were indicated.

Mr. Jonas Stawell's wife was Anne Foster, hence Sir William Foster Stawell. Her father was Bishop of Cork, and his brother was the last speaker of the Irish House of Commons and afterwards Baron Oriel, of the United Kingdom. There were also among her ancestors a Lord Chief Baron of the Exchequer in Ireland, and a justice and baron of the Four Courts.

Sir William Stawell was born in July, 1815, and died at Naples in March, 1889. He had studied at Trinity College, Dublin, acquiring classical honours and, in 1837, the degree of bachelor of arts. He entered himself at King's Inn, Dublin, and Lincoln's Inn, London, and was called to the bar in 1839. I believe he went on the Munster Circuit, where he saw forty lawyers' hats hanging in the robing room; knowing that there was not really sufficient work for twenty, he decided to go to Australia. He left Plymouth on August 8, 1842, on the *Sarah*, a ship of 500 tons' register, recently reduced from "A1 at Lloyds" to a lower class. On the voyage out parts of her sheathing of copper were blown away in a gale; she was lost on the homeward voyage. By this ship was travelling a Mr. William Pomeroy Greene, who in his boyhood was page to the Duchess of Richmond whose husband was Lord Lieutenant of Ireland; at the age of eleven years he became a midshipman in the Royal Navy and was on board one of the men-of-war guarding Napoleon at St. Helena. He was on the *Bomb Hecla* at the taking of Algiers under Lord Exmouth. At the taking of Rangoon in 1824 he caught fever, laying the foundation of the

[1] Delivered at a meeting of the Victorian Branch of the British Medical Association on October 2, 1940.

delicacy which led to his going to Australia. Mrs. Greene (formerly Mary Yorke) and their seven children were with him on the *Sarah*; the children were Molesworth, born in 1827, Rawdon, Mary (Lady William Stawell), William, Richard, George and Charley, who was not two years old when the voyage began. Sir William Stawell was a distant cousin of the Greene family. About the time of the arrival of the Greenes and Sir William Stawell in Melbourne, on December 1, 1842, there came to Victoria a very aristocratic class of immigrants to aid in the heroic work of colonization and to render distinguished service to the young colony; such were Redmond Barry, Charles Griffith, James Moore, Leslie Foster, Dean Hussey-Burgh Macartney, Augustine Barton, Edmund McNeill, William Blois, Acheson Ffrench. (Sir Charles Griffith, Commissioner of Water Supply, carried out the work of the Yan Yean Reservoir in 1854, suggested by Sir William Stawell.) These were mainly of the Anglo-Irish division of Britain and had been mostly friends in the old country; the Griffiths, Fosters, Stawells and Macartneys were blood relatives. William Foster Stawell was noted for daring horsemanship, for tandem and four-in-hand driving and for courage in the hunting field. His legal training exercised a chastening restraint on his fiery, energetic nature (tempered by the limitations of courtesy and the instincts of a gentleman), developing the "reason firm, the temperate will" which might have been overborne by a constitutional intolerance of delay, opposition or injustice. He was the first attorney-general of Victoria and held that position continuously in three ministries for five years. He succeeded Sir William A'Beckett in 1857 as chief justice of Victoria. He retired in 1886. On two occasions he was acting governor of the colony, and after his resignation from the post of chief justice, he was appointed lieutenant-governor. He was president of the Philosophical Institute (now the Royal Society) of Victoria in 1858 and 1859. As chairman of the exploration committee of the Royal Society he actively superintended the arrangements for the Burke and Wills expeditions. (Burke willed a gold watch and notes to him. He sent the watch to Burke's sister and the notes he gave to the Royal Society of Victoria.) He was a trustee of the Public Library, president of the Victorian Deaf and Dumb Institute, president of the Melbourne Hospital (a position later occupied by Sir Richard Stawell) and president of the Melbourne Benevolent Asylum. He succeeded Sir Redmond Barry as chancellor of the University of Melbourne. His family consisted of four sons and six daughters.

One evening when Sir William Stawell was crossing Prince's Bridge he saw a man throw himself from the parapet. Without hesitation he jumped after him and saved the man's life. At a crowded race meeting at Flemington a horse ran away with a cart filled with women and children; he succeeded in stopping it at great personal risk. Sir Frank Madden, Speaker of the Legislative Assembly of Victoria, told a story of Power, a bush-ranger, whom he had occasion to see in Pentridge gaol. Power had determined to "stick up" the chief justice, Sir William Stawell, who had given him some severe sentences, and who was on circuit in Gippsland. It was his Honour's custom to ride from court to court with but a single trooper as escort. This Power knew, and he also knew that his Honour invariably outrode his escort, who was often not even in sight. It was a beautiful bright morning when Power, with a gun across his saddle, took up the position at a turn of a road where he knew the judge must pass. Presently he heard the hoof-beats of a horse and a man whistling. Immediately his Honour rode round the turn of the road and saw Power. He recognized him instantly, as he had tried him several times. He did not hesitate for a moment, "But giving me a look like an eagle", Power told Frank Madden, "said 'Good morning, Power!' and cantered on." Power said: "I had not the heart to stop him, he was so brave."

At the time of the Ballarat riots his firmness, with the decided stand of the Governor, Sir Charles Hotham, saved the State. (It was Sir Charles Hotham, not Sir William Stawell, who ordered the increase of the gold-digging licence fee). A turbulent, heterogeneous gold-fields population comprising the criminals, refugees and adventurers of all the colonies and most of the nations, formed a hastily recruited army because of their capricious treatment by gold-fields officials (many of whom were harsh, inexperienced and even corrupt), and of the exaction of an excessive and obnoxious tax. A great number of discontented diggers joined them at the end of November, 1854. There was fierce fighting; but the British troops under Captain Thomas prevailed on Sunday, December 3, 1854. There were amongst the diggers in the Eureka Stockade some who, if the soldiers had been beaten, would have trampled under foot their more rational leaders like Peter Lalor and others and gone on their path to the accomplishment of ruin unspeakable and irrevocable. Remedial measures were speedily undertaken, licence fees were lowered and the franchise was granted to every holder of a miner's right. Juries would not convict the rioters and an amnesty followed.

As attorney-general, Sir William left no stone unturned to secure the conviction of the rioters. Many times in later years he sat on terms of friendship at social functions with Peter Lalor as Speaker of the Legislative Assembly.

Rolfe Boldrewood, in the peroration to an article in *The Australasian* of May 18, 1889, wrote:

> Sir William Foster Stawell leaves a goodly company of four sons and six daughters to bear witness to a father's care and culture, to carry forward to unborn generations the qualities of truth and courage, of zeal for the right and hatred for the wrong.

How shall I convey to you my conception of Lady William Stawell, who died at the age of ninety years? To attempt to do so I must transcribe a tribute to her memory from an English newspaper:

> It is a grand thing for a man to have been one of Lady Stawell's friends in her old age; to have been admitted to "a place so set apart from envy, fear, discontent, or any of the passions that debase"; a life so honest and composed; a soul like an ancient violin, so subdued to harmony, responding to a touch in music.
>
> The beauty of her face was memorable; it made one better to look at her and be in her presence. She lived for our encouragement and for our love, with that quiet spiritual strength and patience which are the ideal of old age. Her delight was in the successes and gifts of her children and grandchildren. The earlier years of her life had been arduous and brilliant; the later years had their troubles. There are lives, and hers was one of them, which seem to enrich the whole neighbourhood. She was constantly consulted by her husband in all the grave problems of his career. His will, dated October, 1869, revealed his absolute trust in her:
>
> This is my will. I give all my property, realty and personalty, trust estates alone excepted, to my dear wife Mary, whom I appoint my executrix and guardian of my children. I revoke all previous wills. William F. Stawell.
>
> Their daughter, Florence Melian, born on May 2, 1869, had a remarkable career. She had an ardent desire to learn Greek, declaring she would rather read Homer in the original than anything else in the world. (*Nota bene*! Jonas Stawell and his Grecian peninsula.) She studied for two years at the University of Melbourne, taking honours in the examinations. One of the examiners said: "It is not only that she is a Greek scholar, but that she *is* a Greek." She went to Newnham at Cambridge University in 1890, coming out finally in the first division of the first class in the Classical Tripos and was elected classical lecturer at Newnham. She died at Oxford at the age of sixty-nine years. Walter de la Mare (author and poet) wrote a most glowing appreciation of her character and work in *The Times* of June 16, 1936. I am unable to resist the temptation to read it to you:
>
> Melian Stawell was, perhaps, the most remarkable member of a remarkable family. Essentially she was one of those in whom
>
> The fiery soul . . .
> fretted the fragile body to decay
> and o'er-informed the tenement of clay.
>
> With Lowes Dickinson she wrote an important work on Faust, to which she contributed a translation. With F. S.

Marvin she wrote abbreviated translations of the Iliad and the Odyssey, which many Greekless boys have read and reread with avidity. She also gave criticism and help on philosophical subjects to Andrew Bradley. She published a verse translation of the *"Iphigenia in Aulis"*, with a preface by Gilbert Murray, and contributed a volume on "The Growth of International Thought" (1929) to the Home University Library. After the war she worked for the League of Nations Union in London. Her later years were largely devoted to a valiant and most ingenious effort at interpreting the Minoan Script, which she assumed to be written in Greek. One of her best books was "Homer and the Iliad" (1909), written with that delicacy of literary feeling which marked all her work, and proving that the final reconciliation in Book XXIV was essential to the plot of the whole poem—as it now stands—and not by any means an inorganic addition. No one who knew Miss Stawell could fail to be impressed by her vivid interest in people and things; her courage under pain and bad health, the keenness of her intellectual life, and the impetuous generosity of her character.

In whatever degree his style may reveal the very man, those who were acquainted with Melian Stawell only through her writings, can have realized but a fraction of what she was in herself. And how put that into words? There was a perpetual reminder of the aquiline alike in her looks and in her character. In her later years indeed, and this may have always been so even in her childhood, her physical body was hard put to it not only to give out but to endure the energy of her mind and spirit. She could not be neutral or tepid or temporizing. The one church nothing on earth could have persuaded her to attend was that of the Laodiceans. What she thought she knew she thought and said out without fear and utterly heedless of reproach. Her face would become transfigured at the mere mention of what she held dear and her blue eyes shone at such moments with the light within. Familiar with the bitterest of life's realities, she remained a steadfast idealist and neither her intellect nor her learning, though possibly at times a burden, ever became a snare. The philosophies she had mastered had become the second nature of her mind. She would refer at table—and at afternoon tea—to Sappho or Sophocles, to Dante or Goethe, as easily as most of us mention the morning's newspaper. They were her wild flowers, so to speak, not exotics. Indeed, Greek was to her the most living of languages; its literature the hairspring of her imagination. In her belief and practice priceless things like these cannot be arid or highbrow, even if mere shallow thinking may make them seem so.

And so with her convictions—she refused to disguise them as "views". Cruelty, cynicism, censoriousness—she did not merely disapprove, she hated them. I see her now discussing with a complete man of the world, whose every smile, lift of eyelid, and ironic gesture proclaimed his appreciation of the fact, the problem of peace on earth and goodwill towards men. She might have been Moses himself belabouring the rock, although no living water gushed out in response. It was, I believe, a poignant thing to her to realize this imperviousness. That Truth transparent—even at this late day—should not prevail! No cause, then, was beyond her sympathy, at least if only it had a faithful conviction behind it and an undivided heart. Whether it concerned life or letters, her counsel, too, was not only of sovereign value, it also cut as close to the bone as she was capable of. She was a critic of an exquisite courtesy—and acumen. If she liked a thing she might say she loved it, to warm a novice's heart. What she thought clumsy or wrong and deplored—a flash of the rapier and the operation was over. She wore herself out with her own ardour and, not so much with her scorn, as with her grief at a naughty world.

Victoria, only just entering on her second century, has given to the world people, men and women, outstanding in various avenues of life—in the Air Force, the Navy, the Army, in music and song, in the arts and the professions, in sport. We easily mention a Chauvel, a Bridges, a Monash, a Melba, a Streeton, a Dunhill and others; the school and college boy, the man in the street, the students and professors in the university know these. Who of these last know the name of Melian Stawell? She mastered the philosophies, she made Greek a living language, she mentally thought and lived in the empyrean; a Gilbert Murray wrote a preface to her book; a Walter de la Mare wrote her panegyric. Her thought and her work were of those who have carried the highest developments of Grecian thought and culture into our civilizations and have so presented it as to blend it with our daily life. Melian Stawell mentally and intellectually outshone any other of the sons and daughters of Victoria. With the utmost sincerity I speak thus of her as my humble profound tribute to her memory.

Sir William Stawell laboured unceasingly as one of the greatest protagonists to secure the separation of the Colony of Victoria from the Colony of New South Wales. Separation came on July 1, 1851. He drew up the new Constitution of Victoria which was proclaimed on November 23, 1855, and he was the first attorney-general. Some of his colleagues in this Ministry were afterwards well known men—Hugh Childers as Chancellor of the Exchequer in England, Sir Andrew Clarke, governor of the Straits Settlements, Colonel Pasley, R.E., in some important department in England: all were men of ability and culture. As attorney-general, Sir William Stawell was riding late one night, carrying important legal papers strapped to his saddle. He reached the Ovens River, which was flooded, and found that the punt was at the other side; he could not swim his horse as the papers would probably have been injured, so he fastened the horse to a tree, undressed and swam across the flooded river, got on the punt, ferried it over, dressed, got his horse, ferried back and proceeded on his journey.

He was married in the drawing room of "Woodlands", fourteen miles from Melbourne (Greenvale), on January 2, 1856, by the Dean of Melbourne.

Richard, when quite a little boy, was heard by his mother to say to his sister, a year younger: "Mary, I know we shall go to heaven, but how shall we get there?" She answered: "Little Dickie, we'll know when we get there."

What good fortune befell Victoria in its origin! First there were the hardy pioneers, men of brawn and muscle, courageous, determined and persistent, fighting hostile blacks, labouring perseveringly and uncomplainingly, clearing dense bush, ploughing, planting, cultivating, in spite of drought and fire and flood. Do we ever think that we owe all we are and have to them? Then there were such colonists as I have described as coming in 1842—men and women of culture, intellectual, able, pioneers of the second invasion—giving the finish to the work of brawn and muscle by the uplift of their mentality and breeding. Next there was the influx of adventurers of all types from all lands, amongst them speculators, gamblers, criminals of the worst character, drawn by the lure of gold in 1851. What would Victoria have been if Providence had not sent it those aristocrats of 1842?

Kipling says:

> Let us talk of famous men set in justice o'er us.

William Snowball, Australian born, of Welsh extraction, graduate of the University of Melbourne, honorary surgeon to the Children's Hospital, Carlton, was a man of great portliness—broad shouldered, deep chested, corpulent, moving easily with a characteristic unconscious swagger, wearing very closely cut hair, moustache and beard, quite black. He was most kindly and genial to students, and was only too delighted to expound, explain and demonstrate to them everything he observed and deduced from his inspection and examination of his infant and children patients, and to point out the appropriate treatment and methods of application. What he must have appeared to be in the eyes and minds of his infantile subjects was always an intriguing mystery to me. His hands were large, so much so that an undressed infant placed on its back in his broad palms seemed to be completely backed by them, and once in that position facing him the most screeching or whining sick infant became instantly silent and remained passively staring at him. Thence began from Dr. Snowball a minute detailed, totally comprehensive statement of all that there was to be observed of the infant's appearance, posture, facial expression, position of limbs, hands and feet, eyes, respiration, abdominal movements *et cetera*, unhurried yet speedy, with every regard to the comfortable handling and minimum of exposure of the patient. We used sometimes to think that the patient was transparent to him. The infant, still quiet, fascinated, handed to a careful nurse, was then carefully auscultated and returned to its cot. Nothing could possibly exceed the meticulous attention to detail, the cultivated skilled

observation, the orderly array of facts, the masterly accuracy of diagnosis and the experienced selection of appropriate treatment. Like another of Sir Richard Stawell's great teachers, William Snowball was gifted with common sense, which he never failed to use in all his work. He was so much a part of the institution that the mothers of infants spoke of taking the patients to Snowball when they meant the Children's Hospital.

John Williams, born in Wales, took the degree of doctor of medicine of the Edinburgh University and was admitted to Membership of the Royal College of Surgeons of England in 1862; he received the degree of doctor of medicine *ad eundem gradum* at Melbourne in 1876. Williams was a perfect exemplar of the value of the older system of apprenticeship to a good general practitioner as a training for a future physician; he was honorary physician for many years at the Melbourne Hospital and the first lecturer on materia medica and therapeutics at the medical school of the University of Melbourne. He continually praised the training he received from Dr. Imidge, of Norwich, to whom he had been apprenticed as a medical student, and for the many years during which he was a member of the Council of the University of Melbourne, he seized every opportunity that offered to expound the advantages of the system which had made such an unrivalled teacher in clinical medicine as himself. (These last are my words and my firm conviction, over and over again supported by others who were fortunate enough to have worked with him.) He convinced a number of his fellow members of the council. John Williams was full of the joy of life, of good nature to others, of sympathy for and tenderness towards his patients; he was the soul of honour and of the highest ideals of the profession he loved and adorned. His students and his patients alike loved him. His vivacity and cheeriness, his buoyancy of manner, his polite directness of speech, could be seen immediately to uplift his patient the moment he entered the sick room. His "Well, and how are we today?" evoked an instant smile and happy response from his patients, who could be seen then and there to thrust themselves on his care, bursting with confidence. It was said at the zenith of his career that no patient seriously ill anywhere near Melbourne was allowed to go without being seen by him. Tall, erect, broad-shouldered and deep-chested, with side whiskers, moustache and shaven chin, well and carefully dressed, and light and graceful in movement, he was the beau-ideal of a consulting physician. John Williams would have succeeded in any country; he stood out amongst men; he elevated the standing of physicians in Melbourne to the highest plane; he left an indelible stamp upon the clinical teaching of medical students in the Melbourne Hospital. All of these excellences served but to bring into the highest relief his thoroughly sound, deep, wide and up-to-date knowledge of the science and art of medicine. The students of his class at the patients' bedsides were made to examine the patients meticulously and accurately, according to a handbook on clinical examination he prepared and had printed for them. All clinical and laboratory reports were read out. The students had to make a diagnosis and give the reasons for and against it. They then had to suggest the appropriate treatment and justify it. Errors or doubts were passed around the class for correction or criticism. Then he explained the case fully, the important and unimportant symptoms, symptoms and facts missed in the examination, the diagnosis, the treatment. He was unsparing of his time. In the post-mortem room he shone equally as in the wards. His discussions there with Professor Allen, his courteous but firm differences with Professor Allen, and his expositions of the interrelationship between the clinical facts and symptoms and the post-mortem appearances, were unforgettably valuable. Most important of all was John Williams's profound common sense, which permeated the whole of his work at all times.

Sir Harry Allen, a native of Geelong, was a very distinguished medical graduate of the University of Melbourne, who became a demonstrator in and later professor of anatomy under Professor Halford. He was the first professor of pathology at our medical school, and I had the honour and privilege of being one of his students in his first year of pathological professorship. For years he was pathologist at the Melbourne Hospital, and thus he handled all the medical students in the training and teaching of pathology. To him was due the very fine Museum of Pathology in the University of Melbourne. Sir Richard Stawell and he were always on terms of most intimate friendship and were continually discussing pathological subjects.

Professor Charles (later Sir Charles) Martin came from the University of Sydney to take the chair of physiology at the University of Melbourne. He was a remarkably able and gifted man with great intuition and skill in medical research and a wonderful gift in stimulating students to undertake the highest class of research and medical study. He was of uncommonly great value in our medical school, from which he was taken to the blue ribbon of the profession, the chairmanship of the Lister Institute in London. He was a great loss to our university, where his stay was altogether too short; the compensation was that his appointment showed brilliant British men of science that the authorities in Great Britain did not lose sight of the brilliant work done by them in the distant Australian universities.

Richard Stawell inherited many talents from his highly intellectual and deeply cultured parents and forbears and was stimulated by such men as Snowball, Williams, Allen and Martin to develop those talents to the full and turn them to the greatest possible account. Much advantage accrued to him when he was resident surgeon at the Children's Hospital from his intimate association with Arthur Jeffreys Wood, a year his senior at the university. Wood was a good student who had done at least a year's medical work at King's College Hospital, London, before commencing his medical student's course at the University of Melbourne. Wood and I were in the same year and were intimate friends from the beginning of our course in 1881. Throughout his life I knew him well, his great capacity for work, his continuous application and his ingenuity. He formed a close friendship with Stawell at the Children's Hospital, and it was taken for granted that both of them would follow children's diseases as a specialty. They went abroad together to develop further their study of diseases of children in the United States of America, in Great Britain and on the continent of Europe. There was a synergism between them; each reacted upon the other, and the result was a development greater than either would have attained separately. On their return to Melbourne, Wood practised with great distinction the specialty of diseases of children, whilst Stawell (the reason I do not know) gradually developed as a teacher of medicine, in the practice of the science and art of which he became one of the greatest exponents in Australia. He inherited the serious mien and great capacity for work of his distinguished father, the grace and courtesy of manner of both of his parents. He carried with him the stamp of his great and dignified school of Marlborough. He was filled with the sense of the nobility and honour and dignity of that noble profession which he in turn honoured and dignified, the members of which admired and honoured him.

Some years ago an experienced and much trusted sea pilot was unfortunate enough to ground a large passenger steamship in Port Phillip. As a part of the inquiry he was submitted to a test of his eyesight, which was found to be defective, and his appointment as pilot was cancelled by the Marine Board. He had the right of appeal, which he exercised, and as a result he was brought to me for special examination of his eyesight, Sir Richard Stawell being present as an assessor and observer. Some remarks made by Sir Richard with regard to the very detailed and searching methods of modern ophthalmic examinations remained in my mind and suggested the few remarks I propose to make concerning our eyes.

It is a very interesting fact that in all probability the only system that can be said to be in international use is that of sight testing. Musical notation is reputed to

be international; but the Chinese and Japanese have their own method. It is true to say that throughout the civilized world of all nationalities the notation and method of sight testing are the same; the same standards are used, the same methods of mensuration, the same system of lenses, and the prescription can be understood and made up anywhere. When I began to be interested in eye work in 1884, I found a very troublesome method or methods of mensuration. We had in use in the marking of spectacle lenses the English inch, the Paris inch, and, only just newly coming in, the metric system. Manufacturers ground lenses, according to either of these measurements, mistakes were frequent and incorrect lenses were often given to patients. The trial lens cases might have been prepared or constructed on any one of these systems, and the optician might prepare the prescription with lenses of another of the systems. Slowly all this was changed; the metric system was universally adopted in what is known as the dioptric system, the unit of which is a dioptre—that is, a lens whose radius of curvature is one metre; all other lenses, generally speaking, are stronger than this. For example, a two-dioptre lens has a radius of curvature of one-half of a metre, and a four-dioptre lens a radius of one-quarter of a metre, so that whole numbers are used instead of fractions; intermediate sizes and sizes lower than one dioptre are denoted by 0·25, 0·5, 0·75. We assume that two stars separated by an angular interval of less than one minute would be seen as a single point of light. The test types designed by Snellen, of Utrecht, are so designed that the strokes of the letters used, which should be read at a distance of six metres, subtend an angle of one minute and the sizes of the strokes are so arranged that as that distance varies, so does the size of the stroke; the whole letter at six metres subtends an angle of 5°. It is assumed that rays proceeding from a point at a distance of six metres, or 20 feet, may be regarded as parallel. This work is spoken of as refraction; the eyes are tested as to normal sight or variations thereof, the principal of which are long sight, short sight or astigmatism. In the main, these errors depend upon a departure of the shape of the particular eye under examination from the perfectly shaped or normal eye. The long-sighted eye is shorter than the normal eye when measured from back to front; the short-sighted eye is longer from back to front; the eye with astigmatism has two radii of curvature, as has the egg. Astigmatism was first discussed by Thomas Young (1773-1829), perhaps the most extraordinarily versatile genius who ever lived. Precocious, he read fluently at two years of age, and at about fourteen he was acquainted with Latin, Greek, Hebrew, Chaldee, Arabic, Syriac, Persian, French, Italian and Spanish. As a practising physician and professor of natural philosophy at the Royal Institution, he engaged in a continuous series of researches in almost every branch of natural philosophy and biology, which in range of subject and value has never been equalled. Apart from his classical work on optics and vision and several important contributions to general medicine, botany and zoology, he elucidated for the first time the phenomena of capillarity, the relation of work done to mass and velocity, the elasticity of bodies (Young's "Modulus") and developed his theory of tides; while not the least of our inheritance from him is in the science of Egyptology in the translation of the hieroglyphics on the Rosetta stone and the discovery of the symbolic nature of Demotic characters. Professor von Helmholtz, the great physicist, said of Young: "He was one of the most clear-sighted men who ever lived."

It is estimated that in the practice of the treatment of defects of vision probably 75% of defects are errors of refraction. For years the testing of eyesight has been carried out by opticians as well as by ophthalmic surgeons or physicians. Many opticians of good training and painstaking thoroughness can test very well; but the human eye is not merely an optical instrument. It is an organ of a human body, an organic part of that body of which it shares the blood supply by arteries and veins, the nerve supply and the lymph supply. It must be obvious that with errors of refraction there may be also defects or diseases in the various structures of the eye, and that the diagnosis and treatment of such defects can be carried out only by persons having a full knowledge of the diagnosis and treatment of such diseases with an intimate knowledge of the nature and function and condition of those tissues. Consequently it is quite unwise that refraction work should be attended to by other than trained, medically qualified ophthalmologists. There are frequently instances in which the prescribing of spectacles, however accurate they may be, could be unwise or harmful in particular cases. Further, for children and for many adults it is necessary in accurate sight testing to suspend or put out of action the focusing power of the eye by drugs such as atropine or homatropine. The safe use of such drugs requires a full knowledge of the properties and mode of action of these drugs and of their effect upon the eye and the body; such knowledge requires a medical training. Some persons in the past have been pleased to refer to the human eye as a very imperfect optical instrument. This is a generalization without a foundation in truth. It is a most beautifully constructed organ, made up of most delicately complex structures, the components of which are marvellously minute and of wonderful suitability to the function for which they are intended. Let us consider the retina (Latin, *rete*, net); it is formed by the network of the spreading out of the fibres of the optic nerve and is transparent in life. It is thickest at the optic nerve (0·56 millimetre); at the equator of the eye it is 0·18 millimetre (anteriorly, 0·1 millimetre). It is composed of nine layers, of which the outermost is the layer of the rods and cones which are 40 micromillimetres in thickness of layer; each rod is two micromillimetres; the cones number 7,000,000, the rods 75,000,000 to 170,000,000. Two activities exist in the retina: one concerned with light and movement, achromatic, mediated by the rods, and the other, mediated by the cones, concerns itself with form vision and colour vision. Each cone has a separate nerve fibre; several rods are associated together. It is believed that the cones alone are the visual end organs, and that the activity of the rods is limited to the secretion of the visual purple. For vision the primary change in the retina is a photo-chemical one, probably associated with the visual purple—a simple uncomplicated photo-chemical reaction. Products of this reaction set up nerve impulses in a manner which we do not know; they are distributed in the inner layers of the retina among one or more ganglion cells according to the intensity of the action evoked. Thence the impulses travel along the optic nerve, being identical in their nature with all other known nerve impulses. Of the translation of these physiological impulses into psychological sensations we are profoundly ignorant. As to the visual purple, light breaks a single large molecule into two components; the regenerative process is essentially the formation of a complex chemical substance by the combination of two simpler molecules. No theory of vision yet propounded suffices to explain all the facts; it is outside the possibilities of our present knowledge.

The Trustees of the Foundation of the Stawell Oration, thoughtfully, generously and wisely provided by one who was intimately associated with and knew how to appreciate the man and his work, saw fit to invite me to prepare the seventh oration. I was allowed to select my own subject, and was advised that it was the desire of the founder that its scope should be sufficiently wide to emphasize the importance of medical science, medical teaching and scientific research upon the citizens; and that special weight should be attached to the study and presentation of problems presenting a clinical aspect. For these reasons it was decided to select as title "Our Eyes". In the early stage of my preparations a precious book was put into my hands. I instantly realized that I had been given a most wonderful opportunity to deal with the origin, descent and environment of the subject of the oration. In my view the greatest thing in such an oration is the study of the individual himself, and of those amongst whom he moved and of their influence upon him. If what I have ventured to place before you affords you even a small portion of the engrossing pleasure it has given me, I have reason to hope the Founder will forgive my deviation from his strict,

thoughtful instructions. To me the man (Sir Richard Stawell) is the thing.

In his essay on criticism, Pope has some couplets which I use as my peroration:

> Oh! may some spark of your celestial fire
> The last, the meanest of your sons inspire,
> To teach vain Wits, a science little known,
> To admire superior sense and doubt their own.

Acknowledgement.

My account of Thomas Young and of the retina has been taken from Sir Thomas Duke Elder's book "Diseases of the Eye".

A CLINICAL SURVEY OF NINE CASES OF ENCEPHALOMYELITIS IN ASSOCIATION WITH MEASLES.

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DURING the 1939-1940 epidemic in South Australia there were nine known cases of encephalomyelitis with three deaths, among 8,351 reported cases of measles; this represents an incidence of 0·1% and corresponds well with that of the complications mentioned by Zimmerman and Yannet.[1] This complication has been observed on other occasions in various epidemics throughout Australia; thus in Victoria odd cases have been reported during most epidemics since 1923.[2] The present series appears unduly large, however, when the relative mildness of the epidemic is taken into account. It is known that cerebral symptoms may occur at the time when the initial symptoms of measles are at their height, but the present cases do not appear to fall into this category. Clinically, they correspond with the type of encephalomyelitis which in recent years has followed the exanthemata, and in which pathological examination reveals congestion, hæmorrhage, perivascular infiltration and perivascular demyelination in the central nervous system.[3] Unfortunately in the present series it was not possible to procure material for histological study.

Literature.

There is indirect evidence that the encephalomyelitis that follows measles is not due directly to the virus of the exanthem, any more than is that following vaccinia or smallpox; the precise ætiology of the condition is at present obscure.[4] Theories of its causation are as follows: (i) The specific virus of the exanthem has assumed neurotropic properties. (ii) The preliminary infection may activate a latent virus responsible for the nervous lesions. (iii) The lesions may be allergic in nature. (iv) Demyelination may be linked with some nutritional deficiency or be due to some toxic or chemical agency.

It is well known that demyelination does not necessarily occur in infections due to the neurotropic viruses; this point has been discussed recently by Findlay.[3] We know also that it may be caused by the administration of simple chemical substances such as potassium cyanide.[5] A biochemical foundation would account for an identical pathological condition following various infectious diseases which interfere with the essential metabolism of the cell. A few years ago Barnes, Blake, Hogarth and Mitman[7] expressed the view that the common pathology of these encephalomyelitides represents a toxic rather than an inflammatory condition.

It is perhaps suggestive that encephalitis following measles is of reasonably modern description. We owe our earliest account of measles to Rhazes,[8] an Arab of the Dark Ages, in the year 860 A.D. He mentions chiefly the prodromal symptoms and those accompanying the exanthem; it is not surprising, therefore, that he did not associate encephalitis with measles. It is surprising, however, if this complication then occurred at all frequently, that the masterly observer Sydenham[9] did not describe it. The first report of post-measles encephalomyelitis was that of Mr. James Lucas, a surgeon at the Leeds General Infirmary, in 1790, and the next that of Abercrombie.[10] Henoch's case,[11] in which cerebral symptoms appeared about ten days after the rash, appears fairly typical, though the author mentions his own doubt as to whether the case may not have been one of tuberculous meningitis. Barlow[12] reported a case in 1886; in the epidemic of that year several cases occurred and their likeness to infantile paralysis was noted. Further cases in 1905 were those of Batten,[13] Branson[14] and Smith, Pitt and Guthrie (cited by Greenfield).[3]

Little more was heard of this condition until 1924, although from time to time odd cases were observed on the Continent and in England. In 1924 a definite wave of these cases occurred and led to the clinical and pathological descriptions of Winnicott and Gibbs,[15] Musser and Hauser[16] and others. A few years later, our most accurate and complete accounts were given by Ford[17] and by Wohlwill.[18] I have heard of cases occurring during some of the epidemics of measles in Australia, but I am unable to refer to any record.

A survey of many published cases shows that nervous symptoms arose within a few to fourteen days of the appearance of the rash. Some writers have observed a mortality rate as high as 25%, with nervous sequelæ in many of the non-fatal cases.

Concerning the pathology of this type of encephalomyelitis, I cannot do better than quote from the conclusions of two writers. Greenfield[3] has made the following statements:

> 1. The encephalomyelitis which occurs with convalescence of measles is in the majority of cases a disease clinically distinct from poliomyelitis, *encephalitis lethargica* or Landry's paralysis. When recovery occurs it is usually remarkably complete.
>
> 2. The examination of a fatal case and a review of the literature indicate that the encephalomyelitis of measles is characterized by three main types of change. (i) Diffuse congestion of the brain, especially of the white matter, sometimes causing petechial hæmorrhages; (ii) a discrete perivascular infiltration with round cells (this is often absent); (iii) small perivascular zones of demyelination. This last is the most characteristic change of this form of encephalomyelitis.
>
> 3. No clinical or pathological distinction can be drawn between the encephalomyelitis following measles and that which may follow vaccination and smallpox. The epidemiological incidence supports the similarity of the two diseases.
>
> 4. It is therefore probable that these diseases are caused by an unknown virus which spreads in epidemic waves, but produces no disease unless stimulated to activity by the exanthem.

Ford[17] in his summary has made the following statement:

> 5. The pathological-anatomical process is that of a toxic degenerative rather than an inflammatory process according to recent studies by Siegmund, Creutzfeld, Guillery, Wohlwill and Sjövall. There is characteristically a perivascular myelin destruction with collection of lipoid waste products in phagocytes and even in the nervous tissues. There is also great congestion of the vessels with swelling and fatty changes in the vascular endothelium. Multiple small hæmorrhages may occur (Musser). The glia cells contain fatty granules and there is some increase in the glial fibres. Very little change can be made out in the axis cylinders and little or no destruction of the nerve cells. The above picture is probably not specific for measles.
>
> 6. The prognosis for life is good. Only about 10 per cent. of all patients die. About 65 per cent. of those who survive show residual symptoms; weakness in 30 per cent., ataxia in 12 per cent., mental defect or personality change in 17 per cent., and epilepsy in 5 per cent.

It has been suggested by Finley[19] that the distribution of lesions in this type of encephalomyelitis depends primarily on the venous distribution in the central nervous system.

Description of Cases.

Table I presents the summarized clinical reports of my series of nine cases. It will be seen that the average time of onset of nervous symptoms was four days after the appearance of the rash. (This corresponds fairly well

TABLE I.

Nervous Symptoms in Association with Measles.

Case.	Sex of Patient.	Age. (Yrs.)	Time of Onset after Rash.	Mode of Onset.	Main Physical Signs.	Course of Illness.	Examination of Cerebro-spinal Fluid.	Sequelæ.	Result.
I	M.	9½	Three days.	Drowsiness; became irrational; admitted to hospital on December 11, 1939.	Temperature, 98·8° F.; pulse rate, 116 per minute; respirations, 24 per minute; very drowsy and irritable when disturbed; vomiting; hæmorrhagic rash fading; retention of urine; much neck rigidity; upper limbs normal, lower limbs grossly paretic and flaccid; knee jerks and ankle jerks absent; plantar reflexes flexor in type.	Bladder repeatedly catheterized; owing to failure of swallowing, child was fed nasally; gradual improvement in general condition, but legs remained useless and became very painful.	December 12, 1939: Increased pressure; 90 cells per cubic millimetre, mainly lymphocytes; globulin greatly increased.	Right acute *otitis media*; much weakness of right posterior tibial muscles and right hamstring; knee jerks and ankle jerks present; plantar reflexes flexor in type; child remained in this state eight weeks after onset.	March 10, 1940: Recovery except for greatly weakened posterior tibial and hamstring muscles; muscle power returning; definite hyperæsthesia over these areas.
II	F.	11	Three days.	"Shaking" and retention of urine; much aching of legs; weakness; admitted to hospital on November 30, 1939.	Temperature, 98° F.; pulse rate, 80 per per minute; respirations, 20 per minute; later temperature rose to 102° F.; child very drowsy and quiet; fading rash; all reflexes normal; Kernig's sign present; much neck rigidity; no muscle weakness.	Bladder catheterized repeatedly; gradual improvement in child's mental condition.	Not examined.	Coliform pyelitis.	Complete recovery.
III	M.	3	Three days.	Delirium, vomiting and severe cough; admitted to hospital on December 30, 1939.	Temperature, 103° F.; pulse rate, 140 per minute; respirations, 34 per minute; fading hæmorrhagic rash; no other abnormal signs.	Two days later temperature fell to 99° F., but child became very drowsy; next day temperature 103° F.; stupor and much neck retraction; two days later child completely comatose, with flaccid paralysis of all limbs and gradual failure of respiration; fundal hæmorrhages present; temperature rose to 105° F. before death.	January 2, 1940: pressure normal; three lymphocytes per cubic millimetre; globulin test elicited a positive reaction.	—	Death.
IV	M.	8	Four days.	Convulsions and vomiting; admitted to hospital on December 26, 1939.	Child comatose and cyanosed, with mouth twitching; convulsions; laboured deep breathing; right pupil greater than left; knee jerks exaggerated; plantar reflexes flexor in type; temperature, 99° F.; pulse rate, 146 per minute; respirations, 32 per minute; hæmorrhagic rash.	Nystagmus developed, with severe and frequent convulsions; deepening coma, with failure of respiration; stiff neck; temperature 108° F.	December 26, 1939: Within a few minutes of death 80 cubic centimetres of uniformly blood-stained fluid were withdrawn; the fluid coagulated rapidly.	—	Death. At autopsy moderate congestion of all viscera; brain and meninges greatly engorged; brain substance much softer than usual; brain stem abnormally pink; vessels very prominent; no sections, owing to loss of brain from faulty fixation.

TABLE I.—*Continued.*

Nervous Symptoms in Association with Measles.—Continued.

Case.	Sex of Patient.	Age. (Yrs.)	Time of Onset after Rash.	Mode of Onset.	Main Physical Signs.	Course of Illness.	Examination of Cerebro-spinal Fluid.	Sequelæ.	Result.
V	F.	6	One day.	Drowsiness, difficulty in swallowing, delirium and twitching of hands and arms; admitted to hospital on December 8, 1939.	Constant rolling of head, expressionless face, and eyes apparently blind; coarse tremor of upper limbs; legs spastic; knee jerks, ankle jerks and arm jerks exaggerated; plantar reflexes flexor in type; temperature, 101·4° F.; no neck rigidity.	Slow improvement in mental condition; would not speak; sight returned in 14 days; emotional.	December 12, 1939: Increased pressure; increased globulin; 100 lymphocytes per cubic millimetre.	Fine tremor of hands, some athetoid movements; no attempt at speech; mentally, practically no sign of intelligence.	Once an unusually bright and intelligent child; eight weeks after the onset of nervous symptoms she was living a purely vegetative existence. By March 10, 1940, definite improvement in mental state was rather suddenly manifest; she was still unable to stand. She has been mildly pyrexial and has had a discharging ear.
VI	M.	20	Four days.	Extreme drowsiness; complained of choking; admitted to hospital on January 6, 1940.	Temperature, 103·6° F.; pulse rate, 116 per minute; respirations, 24 per minute; patient stuporose, with hiccup; spasmodic movements of left side of face; resented interference; limbs held rigid; knee jerks and ankle jerks not elicited; plantar reflexes flexor in type; Kernig's sign present; much neck rigidity.	Incontinence of urine; hiccup and fixed stare; nasal feeding needed because of difficulty in swallowing; consciousness slowly reappeared; reflexes sluggish.	January 6, 1940: 43 cells per cubic millimetre, 80% lymphocytes; chlorides, 0·720%; increased pressure; trace of globulin. January 18, 1940: Four lymphocytes per cubic millimetre; globulin increased. February 2, 1940: Five lymphocytes per cubic millimetre; increased globulin.	None.	Complete recovery.
VII	F.	4	Six days.	Severe vomiting; child dull and listless, rolling head from side to side; admitted to hospital on January 17, 1940.	Child stuporose, crying when disturbed; much head rolling, bluish lips; temperature, 99·4° F.; pulse rate, 100 per minute; respirations, 36 per minute; appeared to be blind; stiffness of the neck; abdominal reflexes sluggish; knee jerks and ankle jerks absent; plantar reflexes flexor in type.	Child still appeared to be blind a week later; did not respond to any questions; right knee jerk present. During second week seemed to recognize parents, but did not speak.	January 23, 1940: Increased pressure; two cells per cubic millimetre; increased globulin. February 3, 1940: Pressure normal; 164 cells per cubic millimetre, nearly all lymphocytes; increased globulin.	Child would not speak, and only rarely seemed to understand spoken word; could not sit up; all muscles still flaccid.	March 10, 1940: No change in mental state, but all reflexes were normal, and there was some evidence of deep tenderness over muscles; child made no attempt to sit up or carry out any purposive voluntary movement.
VIII	F.	18	Five days (two days of normal temperature intervening).	Gradually increasing drowsiness.	Admitted to hospital comatose; temperature 106° F.; pulse rate, 140 per minute; gradually deepening cyanosis, with head retraction and loss of reflexes.	Gradual failure of respiration, followed by death thirty hours after admission to hospital.	Not examined.	—	Death.
IX	M.	4	Two days.	Gradually increasing drowsiness whilst in hospital; admitted with measles on November 14, 1939; cerebral symptoms began on November 16, 1939.	Temperature suddenly rose to 104·4° F.; increasing drowsiness.	Remained for three days in this state, then gradual improvement; at no time were there localizing nervous symptoms.	November 23, 1939: increased pressure; seven cells per cubic millimetre; increased globulin.	—	Complete recovery.

with a series of six cases reported by Ferraro and Scheffer.[20] In their series the complication appeared on an average within 4·8 days of the appearance of the rash, although the extremes were ten days afterwards and on the same day as the rash appeared. Also Zimmerman and Yannet[3] have found the condition arising before the rash and as long as fifteen days afterwards.) In four instances the initial infection had been severe; the rash was hæmorrhagic and staining of the skin lasted up to seven or eight days. None, however, were cases of the true hæmorrhagic measles which have been described. Within the period between the appearance of the rash and the onset of cerebral disorder, the temperature in every case had been normal or had fallen considerably from its previous high level. In the fatal cases the temperature rose to 105° F., 106° F. or 108° F. before death.

As initial symptoms of encephalomyelitis, drowsiness occurred in five cases, vomiting was prominent in four, and convulsions or muscular twitchings occurred in three. All patients were in a stuporose state on admission to hospital; six showed either mild head retraction or much stiffness of the neck. The reflexes were variable, as was tonus of the limbs; flaccidity was the commonest finding. Two patients suffered from retention of urine, a lower proportion than the literature on the subject would suggest. Two children needed nasal feeding because of failure of the muscles of deglutition. Blindness of cortical type occurred in two cases, and several other patients were thought to have been temporarily blind in the early stages of the disease.

The cerebro-spinal fluid was clear and colourless in all cases but one, in which it was uniformly blood-stained. The pressure was raised in six cases. The cells were usually increased in number and lymphocytes predominated. In every instance there was considerable increase in globulin content.

Death ensued in three cases, a higher proportion than that observed by other writers, who mostly describe a mortality rate around 10%; in one publication, however, the mortality rate was given as 25%.[21] Complete recovery occurred in three cases. The remainder of my patients suffered definite disability lasting for at least six months. (Of Ford's patients,[17] 65% showed prolonged disability.) Two children previously considered to be of more than average intelligence were confined to bed for over five months; during this time they were unable to sit up or to speak, and exhibited no intelligence or understanding of spoken words. One of these children later showed some improvement of the mental condition, but became generally spastic and afflicted with coarse tremors. In one case weakness and atrophy of muscle groups, much as in poliomyelitis, were associated with tenderness and hyperæsthesia indicating involvement of the sensory apparatus.

Of the patients who died only one came to autopsy, and in this instance, unfortunately, only macroscopic examination of the central nervous system was possible as the brain was spoiled by improper treatment.

All of my cases fall into one or other of the groups described by Ford.[17] Cases II, VI and IX correspond with his cases of generalized cerebral involvement, ending usually in complete recovery. Cases III, IV and VIII were fatal, and of the type in which widespread damage to the cerebrum, brain-stem and medulla occurred. Case I was of the paraplegic or spinal type, with the sequelæ of weakened and atrophied muscles, especially in the leg. The symptoms in Case V suggested extensive lesions in the higher centres and basal ganglia; the child remained mentally deficient, with tremors and athetoid movements, and only after twenty weeks was some improvement of the mental condition apparent. In Case VII evidence of diffuse meningo-encephalomyelitis was furnished by the initial head retraction, stupor and complete muscular flaccidity. After nine weeks all the muscles were still flaccid and hypotonic, and there was considerable mental impairment; after twenty weeks the child took more notice of surrounding objects and events, but was still unable to speak.

Comment.

Apart from these nine cases considered in some detail, others of a mild type have been encountered by other physicians. Among the patients at the Metropolitan Infectious Diseases Hospital, Northfield, I have noticed many exhibiting unusual drowsiness, frequent vomiting and fleeting muscular weakness; these symptoms were, however, mild and transient, and it was not deemed reasonable to subject the patients to lumbar puncture.

Although the theory that some deficiency in diet, or some chemical substance damaging certain cells and leading to demyelination, may appear the most likely explanation of "acute perivascular myelinoclasis",[4] the fact remains that in many previous outbreaks of measles, some much more severe than that of 1939-1940, only occasional cases of encephalomyelitis have been observed. The historical evidence also points definitely to a periodicity in the appearance of this complication. I feel it only reasonable to consider the possibility of a periodic change in the virus, which from unknown influences may suddenly assume neurotropic properties. The suggestion that an epitheliotropic virus may become neurotropic, as we see in measles, has an analogy in the observations of Burnet[22] regarding the virus of poliomyelitis; he believes that in early epidemics of this disease the virus may have been largely epitheliotropic, whereas in recent epidemics it has been almost exclusively neurotropic. In several of my cases, and particularly Case I, it seemed that the virus or agent had attacked the anterior horn cells, in much the same manner as does that of poliomyelitis, and so had become truly neurotropic. (While sections made by Professor Hurst from subjects of encephalomyelitis complicating vaccinia and smallpox show so much cellular infiltration around neurones of the anterior horns that it is easy to imagine a temporary loss of function by these cells, I could not detect neuronophagia or other changes pointing to their irreversible damage.) It may be recalled that some of the earliest cases following measles were confused with poliomyelitis. Another point of some importance is that, whereas patients suffering from encephalomyelitis following vaccinia and smallpox recovered completely, in the case of the complication following measles Ford has reported a large percentage with permanent sequelæ. As I have stated, my own experience has been similar. Were it possible later to examine the brains of these subjects, valuable pathological data might be secured; this has recently been done by Malamud[23] in the United States of America.

Summary.

Nine cases of encephalomyelitis following measles are described briefly.

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THE EFFECT OF GLUCOSE ON COMPETITORS IN SPRINT SWIMMING RACES.

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THE question concerning the beneficial effect of taking glucose shortly before a race has been raised with increasing frequency during the past few years. There is no doubt that a belief in the virtues of glucose has become firmly established in the minds of many athletes in quite a variety of sports. I know of instances in which an athlete has adopted the glucose habit to such an extent that he makes a practice of taking it daily during training, even to the extent of pouring a liberal amount of glucose powder over his morning porridge.

While it is a simple enough matter to tell the athlete that such a practice is the precise equivalent of adding so much more starch to his meal, one cannot dogmatize concerning the effect of raising the blood sugar level by taking glucose, so as to cause the summit of the blood sugar level to coincide with the time of the race. It was therefore in answer to such questions that the following experiment was carried out with the assistance of some of the officials of the New South Wales Amateur Swimming Association. The test was carried out on the morning of August 24, 1940, in an indoor swimming pool in Sydney.

At this time of the year swimmers are not in training; but the subjects concerned were all well able to put up a reasonably good performance for two separate sprint swims of 80 yards each (four complete lengths of the pool) spaced some fifty minutes apart. All the subjects were good club swimmers, accustomed to weekly races in the summer time, while some half a dozen were up to the standard of State championship competition. It is well recognized that the average better class club swimmer can compete in a final 100 yards race some forty-five to fifty minutes after a preliminary heat and closely duplicate his earlier performance. It was judged from this that if the distance was shortened to 80 yards, even though the competitors were not in good training, a second trial after fifty minutes would be a reasonably close approximation to the first swim.

It should be emphasized that it is not necessary for this condition to be fulfilled in order to make a valid comparison between a control and an experimental group, since every man would swim twice under the same conditions. None the less, it is of interest to note that the assumption of complete recovery in fifty minutes was justified, since the time of the control group was increased in the second swim by only 0·15 second in approximately fifty seconds; this represents the negligible degree of slowing of only 0·3%.

The experiment was planned so that half the swimmers would take a dose of glucose shortly after the first swim in order that the performances of this group could be compared with that of the control group in the second swim. With a view to reducing the number of variables concerned in this experiment, an attempt was made to eliminate the effect of difference in time between breakfast and the first swim and also the difference in calibre of the swimmers. To this end a form (see below) was prepared so that data relevant to these factors could be collected and examined before the test.

FORM FILLED IN BY EACH SWIMMER.

Name and initials in BLOCK LETTERS	
Age	.....Years (to nearest year).
Stripped weight to nearest 2 lb.	.....stone.....lb.
Best time for 100 yards ..	.....secs.
Time when breakfast finished this morning	
State whether breakfast was light, medium or large (Strike out the unsuitable words.)	Light, medium, large.
Guess your time for 100 yards swim today to nearest 3 seconds, *e.g.* 61–64 secs...	
State when finished training last season to nearest fortnight, if possible ..	
Have you been accustomed to take glucose (*a*) in training .. .. (*b*) before a race .. (Strike out the unsuitable words.)	 (*a*) Never, sometimes, often. (*b*) Never, sometimes, often.

When this was done the swimmers were first arranged in the following groups: (*a*) the early breakfast group, (*b*) the intermediate breakfast group, (*c*) the later breakfast group. A survey of the data indicated that it was not worth while attempting to compensate in any way for the difference between light and heavy breakfasts. Each group was now subdivided so that two teams could be made of about equal strength based on the best performances submitted. These two teams were then matched against each other to constitute a relay race, and so to reproduce as nearly as possible actual racing conditions. Timekeepers were available to take the times of each individual in the races, and in addition, as a check, the time by which each winning team beat its rival was taken separately.

Since it was clear that in such an experiment psychological factors would probably prove to be important, it was necessary to keep the competitors in ignorance as to which subjects took glucose. In the first place, a sufficient volume of 20% glucose was prepared to give each member of one team in each relay 250 millilitres, the dose being thus equal to 50 grammes of glucose; on the other hand, each member of the control group was given 250 millilitres of water containing two dissolved saccharin tablets, which was found by a preliminary test to give a solution reasonably comparable in sweetness with the glucose solution. The appropriate drink was given to each swimmer ten minutes after the completion of his first swim. In order to prevent any possible exchanges of information between the members of the control and the

experimental groups, the difference between the slight yellow colour of the glucose solution and that of the water was eliminated by the addition of a small quantity of cochineal to both. It should further be emphasized that these two sets of solutions were measured out by the writer in the privacy of a room adjacent to the pool before any of the competitors or the officials arrived, so that no other single person knew which set contained the glucose, and which the saccharin. Any possibility of subsequent confusion as to the identity of the sets as far as the writer was concerned was eliminated by carefully making one set distinctly deeper in tint than the other, and by making a record of the difference. Further, although the subjects knew that the whole experiment was carried out to test the effect of glucose, they drew the conclusion that all were being given a dose of that substance, and endeavoured to swim their hardest in each of the races. The results are set out in Table I.

TABLE I.

Control Group.				Glucose Group.			
Initials of Subject.	Times.			Initials of Subject.	Times.		
	T_1.[1]	T_2.[2]	T_2-T_1.		T_1.	T_2.	T_2-T_1.
Relay I—							
R.B. ..	59·0	58·8	−0·2	K.B. ..	51·4	53·0	+1·6
F.F. ..	51·2	51·9	+0·7	R.L. ..	50·8	53·2	+2·4
A.D. ..	49·2	49·4	+0·2	A.C. ..	50·2	51·2	+1·0
C.P. ..	45·0	45·6	+0·6	E.L. ..	46·0	46·6	+0·6
Mean ..	51·10	51·42	+0·32		49·6	51·0	+1·4
Relay II—							
J.F. ..	52·7	53·0	+0·3	R.R. ..	50·8	49·8	−1·0
J.B. ..	52·1	52·1	0·0	E.S. ..	49·0	49·6	+0·6
F.C. ..	48·6	48·6	0·0	J.D.C. ..	49·6	51·9	+2·3
J.J. ..	44·0	44·4	+0·4	J.C. ..	45·4	45·8	+0·4
Mean ..	49·35	49·52	+0·17		48·7	49·27	+0·57
Relay III—							
F.R. ..	50·0	49·3	−0·7	R.Te. ..	50·8	53·2	+2·4
R.S. ..	50·1	51·7	+1·6	R.Ta. ..	51·8	51·4	−0·4
Mean ..	50·05	50·5	+0·45		51·3	52·3	+1·0

[1] T_1 is the time in seconds for the first swim.
[2] T_2 is the time in seconds for the second swim.

From this it may be seen that most of the subjects recorded rather slower times in the second race than in the first.

A more condensed comparison may be made if each team is considered as a single unit. Such a comparison is set out in Table II.

TABLE II.
Summary of the Teams' Race.

Race.	Before Glucose or Saccharin.	After Glucose or Saccharin.	Relative Effect of Glucose.
Relay I ..	S. beat N. by 5·9 seconds.	S. beat N. by 1·7 seconds.	Worse by seconds. 5·9−1·7=4·2
Relay II ..	S. beat N. by 2·6 seconds.	S. beat N. by 1·0 second.	Worse by seconds. 2·6−1·0=1·6
Relay III ..	N. beat S. by 2·5 seconds.	N. beat S. by 3·6 seconds.	Worse by seconds. 3·6−2·5=1·1

N. = North Teams (controls); S. = South Teams (glucose teams).

The results show that in the second set of swims the glucose group, far from improving relatively to the control group, fared a little worse. One mistake did occur during the experiment—namely, that one member of a control group crossed to the opposite side of the pool during the distribution of drinks and took a dose of glucose. This does not affect materially the group comparisons. Comparison of the individual data may be simplified if the T_2-T_1 values are arranged in order of magnitude for the control and the experimental groups. In the setting out of these data, the supernumerary glucose competitor has been placed in his proper group.

Before any results were made known, each subject was questioned as to his own feelings in regard to the effect of the drink upon his second swim. He was asked to record whether he felt better, worse or the same in the second swim in comparison with the first.

These data are set out in Table III.

TABLE III.
Individual data set out in order of magnitude of T_2-T_1, *where* T_1 = *time in seconds for the first race and* T_2 = *time in seconds for the second race.*

Control Group.		Glucose Group.	
T_2-T_1. (Seconds.)	How Subject Felt.[1]	T_2-T_1. (Seconds.)	How Subject Felt.
−0·7	Much better.	−1·0	Worse.
−0·2	Better.	−0·4	Little better.
0·0	Worse, then better.[2]	+0·4	Much worse.
0·0	Worse, then better.	+0·6	Same.
+0·2	Same.	+0·6	Same.
+0·3	Worse, then better.	+1·0	Worse, then better.
+0·4	Same.	+1·6	Same.
+0·6	Better.	+1·6	Worse, then better.
+0·7	Better.	+2·3	Much worse.
		+2·4	Not recorded.
		+2·4	Worse, then better.
Mean: +0·145		+1·12	
Standard deviation: 0·37		1·11	

[1] In the column "How the subject felt", are recorded his subjective impressions during the second race in comparison with the first.

[2] The phrase "Worse, then better" means that the subject felt worse after drinking the glucose or the saccharin, but felt better during the actual second race.

The table shows that while the control subjects swam the second race 0·145 second more slowly on an average, the times of the glucose subjects were 1·12 seconds slower. This fact alone does not suffice to decide whether any significant difference between the groups has been produced by glucose. It is necessary to take into consideration also the standard deviations of these two sets of differences and also the total number of subjects concerned.

The method of "Student"[(1)] may be applied here to evaluate the probabilities in question. If the results are treated by this method, it emerges that the odds against a chance occurrence of an average difference of 0·145 with a standard deviation of 0·37 in the case of nine experiments are 6 to 1. Hence the odds are 6 to 1 that under the conditions of the experiment a second swim in the case of the control subjects was slightly slower than a first swim. Further investigation shows that when the data from the glucose group were compared in this way with the data of the control group, the odds that an additional slowing was caused by the taking of glucose was about 500 to 1.

A much better perspective of the values in Table III is afforded by the graphs in Figure I. Here the values of T_2-T_1 are all set out in ascending order of magnitude from left to right. This comparison shows strikingly how uniform were the performances of the control group. The mean absolute difference (irrespective of sign) between the two swims was only about 0·5%. On the other hand, not only does the curve for the glucose group run well above that for the control group, but the performances were much more irregular. In this case the mean absolute difference, irrespective of sign, between the two swims amounted to 2·5%.

A cursory glance would give the impression that the subjective data are very unreliable; but relationship becomes evident when these data are further analysed as in Table IV.

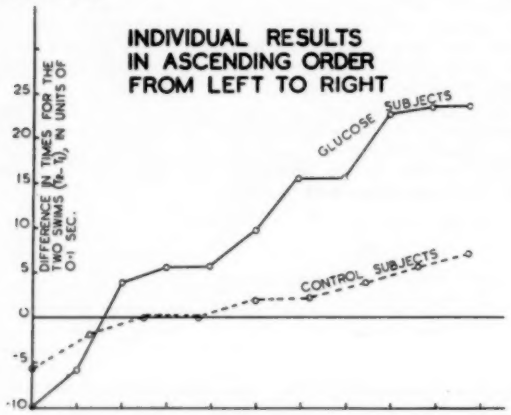

FIG. I.

FIGURE I.

Showing a comparison between the T_2-T_1 values for the control and the glucose subjects. The individual values in each case are shown in ascending order from left to right.

This table shows that as the subjective feelings taken collectively run from better to worse, the actual times registered proceed through stages from better to worse with the exception of the last group, in which one swimmer who declared that he felt worse swam much better. There is therefore a rough correlation between subjective feeling and performance.

TABLE IV.

Summary of Subjective Data.

Subjective Judgement.	Number of Cases.	Actual Result.	Mean T_2-T_1. (Seconds.)
Better without qualification.	6	3 better. 3 worse.	0·0
Same	5	All worse.	+0·68
Worse, then better ..	6	2 same. 4 worse.	+0·90
Worse, without qualification.	3	1 better. 2 worse.	+0·60

Summary.

1. A series of relay swimming races (80 yards per man) was instituted with a comparison between control and experimental groups in order to test the popular belief that the taking of glucose is beneficial to a competitor in a race.

2. In three relay races held (in which 20 swimmers in all took part) the experimental groups fared relatively worse in a second swim (after taking glucose) than the control groups.

3. The times for the control groups in the second swim were respectively 0·65%, 0·35% and 0·45% slower than in the first swim; while the times in the experimental groups fell off respectively by 2·8%, 1·15% and 2·0%.

4. A statistical investigation of the individual data shows that the odds are 500 to 1 and that the taking of glucose prior to a sprint race is slightly disadvantageous. At any rate, it is quite clear that the procedure is not advantageous.

5. The subjective feelings of the swimmers, although individually unreliable, show a distinct correlation with performance when taken collectively.

Acknowledgement.

In conclusion, I wish to thank all the subjects and the officials of the New South Wales Amateur Swimming Association (in particular, Mr. Jack Plummer), whose wholehearted cooperation was so essential to the success of the experiment.

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TREATMENT OF FRACTURE OR DISLOCATION OF THE CERVICAL VERTEBRÆ.

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AND

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IT is evident from the recent crop of papers[1][2][3][4][5][6] on the use of skeletal traction in fracture or dislocation of the cervical vertebræ that mobile traction of considerable duration may be required, and that a Glisson sling, bearing on the soft tissues under the chin, is not suitable for this purpose.

To those papers reference should be made for the indications for prolonged traction. This communication is concerned with a device which has some advantages over the methods so far described, and some disadvantages. The basis of the method is that one has in the teeth of the upper jaw structures which are rigidly fixed to the cranial skeleton and withstand large pressures without injury, and on the occiput a broad flat base for counter-traction. A plate bearing evenly on all these teeth can be used to pull on the neck.

The palatal piece (see appendix for the technique of construction) of the extension apparatus was made by casting in aluminium a smooth curved trough. This trough was supported by a transverse nickel silver palatal bar fitted to the tips of the cusps of the teeth and had projecting from its anterior surface between the lips an extension which allowed two stainless steel arms to be fitted firmly into vertical holes and there locked by thumb screws. These stainless steel arms then curved round the cheeks and were drilled so that they could be attached to the traction opposite the second bicuspid or first molar teeth; traction at this point gives stability of the palatal piece on the teeth, and the greater part of the pressure on the multicuspid teeth. Traction was made on the *planum occipitale* through a moulded aluminium trough lined with thick sponge rubber (Figure I). A cast made by filling the trough with plaster of Paris cream and allowing the stockinetted head to "float" in it until the plaster set would probably be better; but in the case reported here the hair was of an intractable type for this manœuvre. This moulded frame was mounted on a roller skate, an idea borrowed from Dr. C. W. B. Littlejohn's practice in these cases. To this frame a bow of "Meccano" iron was fixed to pass round the forehead, and from this bow steel connecting bars were attached to the cheek bars of the palatal part of the traction apparatus. To the holes in the bow, between the occipital and palatal attachments, the weights on each side were fixed, and, passing over suitably placed pulleys, they provided mobile traction.

The advantages claimed for this method are as follows. There is no open wound communicating with the calvarial bone. The point of application of the pull, relative to the cervical bony axis, can be altered readily so that the degree of flexion or extension of the neck can be modified by this alone. It is also possible to put a greater pull on one side of the neck than on the other, thus producing lateral deviation, if this is required. The mouth can be opened readily for eating and speaking and the palatal part can be removed as frequently as required or desired to allow cleaning of the upper teeth. All these latter points are,

in comparison with a Glissan sling, definite advantages. The first two are advantages over the method of skeletal traction; but this method has the advantage of allowing the patient to lie on the side. If the moulded occipital frame described in this paper were replaced by a sub-occipital strap of leather or moulded aluminium such movement would be possible.

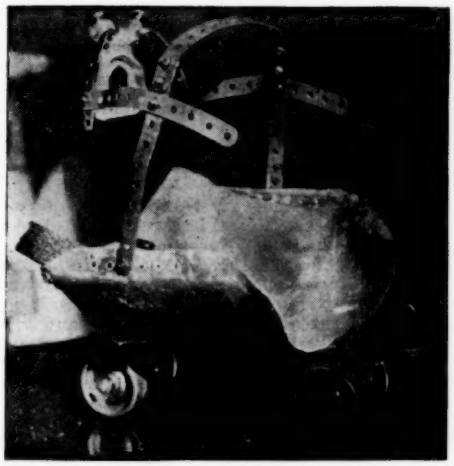

FIGURE I.

The appliance as used. Mounted on a roller skate the aluminium trough is lined with sponge rubber. The manner of suspension of the palatal piece from the coronal bow is illustrated.

Report of a Case.

O.S., a female patient, aged fourteen years, was admitted to the Royal Melbourne Hospital on February 19, 1940. Seven weeks previously she had been injured diving into shallow water and was treated unsuccessfully in a country hospital during this period. She showed no definite neurological signs on her admission to the Royal Melbourne

FIGURE II.

The patient is shown with the traction apparatus applied.

Hospital. An X-ray examination at that time revealed a fracture-dislocation at the junction of the fourth and fifth cervical vertebræ and a compression fracture of the seventh cervical vertebra. Palato-occipital traction was applied on February 21, 1940; four pounds weight was used each side and the neck was almost straight (Figure II). Traction was increased gradually to eight pounds on each side on February 28, 1940, when the articular processes were free. Hyperextension was commenced, and on March 4, 1940, the articular processes were engaged and the anterior dislocation was almost reduced. Weight was reduced to six pounds on each side, and on March 7, 1940, the traction was removed.

At all times this patient was very comfortable, and the sixteen-pound total traction gave no evidence of being excessive. Although the opportunity did not occur in this case, it would appear possible that the palatal part of this traction apparatus could well be used if a plaster jacket was to be employed for retention of reduction. If the stainless steel arms were lengthened and bent downward at right angles opposite the junction between the second bicuspid and first molar, the aboral extremities could be included in the plaster; the mass of plaster would thus be removed from under the chin and its upward extension would be restricted to the occipital region only. Because the maxilla would now be incorporated firmly with the plaster, it appears possible that the forward dislocation of the upper part of the vertebral column (stressed by King) would be less likely to occur.

Appendix.

The method used in the construction of the intraoral section is as follows: (*a*) As the patient had fourteen upper teeth, an impression of the upper arch was taken in an elastic material known as "Paribar". Any good elastic impression material is preferable to plaster when the patient is lying in bed. (*b*) A model was cast in coloured dental artificial stone; but a plaster suitable for prosthetic purposes could have been used. (*c*) Plaster was run into all the interproximal spaces on the model and into the depressions on the occlusal and other surfaces; the tips of the cusps and the incisal edges were not covered. A layer of plaster about $\frac{1}{32}$ of an inch in thickness was placed over all the labial, buccal and lingual surfaces of the teeth; but tin-foil could have been used instead. This covering prevents the intraoral section from fitting too snugly against these surfaces, as too close adaptation would cause discomfort to the patient. (*d*) A palatal bar was made out of thick nickel-silver sheet, and a piece of thin tin-foil was placed between it and the palatal surface of the model. (Here, again, too close adaptation of the bar to the model itself would result in irritation to the patient's palate during treatment, if by any chance the teeth were even slightly depressed into the alveolar process.) The ends of the bar extended over the occlusal surfaces of the teeth on the model, and they were notched to provide secure attachment in the aluminium. (*e*) With the bar in position, the model was "waxed up" in the way familiar to dentists. The wax represented a special impression tray with a bar instead of a complete palatal covering, and with a handle modified as already described for the purpose of providing attachment for the extraoral arms. (*f*) The wax was removed from the model, and it was then invested and eliminated, and aluminium was cast into the resulting mould. (*g*) Holes were drilled in the extension (corresponding to the handle of a tray) to hold the anterior ends of the arms and the lock screws for the arms.

The intraoral section could be made of vulcanite if aluminium were not available, sufficient thickness being provided for the strength required, and reinforcements could be included on the buccal and labial aspects, and also in the extension, by means of embedded wire. Hard brass rod could be used instead of stainless steel for the extraoral arms.

A similar method could be followed for a patient with an edentulous upper jaw, except that the palate would have to be completely covered with the aluminium or vulcanite, instead of a palatal bar being used. If the whole anatomical surface of the model were covered with tin-foil before "waxing up", the resulting intraoral section would be more comfortable to the patient than if made in the ordinary way.

Acknowledgements.

We wish to express our thanks to Dr. C. W. B. Littlejohn for permission to use the apparatus in this case, and to Professor A. B. P. Amies for the fabrication of the palatal piece.

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EXPERIENCES IN THE HIGH LIGATION AND INJECTION TREATMENT OF VARICOSE VEINS.

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IT is not proposed to discuss to any extent the usual method of treating varicose veins by injection at various places through the skin. This still plays an important part in treatment, but its use should be restricted to the sclerosing of small groups of veins. Very large and widespread varicosities have been treated successfully in this way; but it is apparent, from the growing literature on the subject and from the oft-repeated stories from numerous out-patients, that many of the final results are disappointing. This dissatisfaction may be due either to recurrences or to the prolonged treatment necessary in the advanced degrees. Ochsner and Mahorner (1937) found that recurrences from the injection method alone occurred in 57·5% of cases, and from ligation and simultaneous injection in 18%.

The high ligation and injection technique has been used for a sufficient number of years now for an appraisement of its value to be possible. It is significant that it has become the standard technique in many centres scattered throughout the world. It is obvious to those seeing many cases that there are problems and difficulties in connexion with the procedure which are seldom mentioned in papers on the subject.

Four questions still remain to be answered with authority. In this paper it is not proposed to answer them with authority; but it is hoped that others may be stimulated to supply the desired information from their own experiences. These questions are: (i) In what cases is this method indicated? (ii) What is the best routine technique? (iii) What sclerosing agent and how much of it should be employed? (iv) What complications and sequelæ may be expected?

Selection of Patients.

In only the two extreme degrees of varicosity is this treatment contraindicated. Legs with small groups of veins do not need extensive clotting. On the other hand, obstruction of the deep veins is an absolute contra-indication. Old deep thromboses, so common amongst female patients at a large clinic, may leave no trace behind them. Presumably the veins have become recanalized or an efficient collateral circulation has been established. There is not the slightest reason why ligation and injection should not be carried out in these cases.

The contraindications are apparently few. Much is written about various tests. A careful history is more important in estimating the condition of the deep veins. If the œdema and superficial varicosity have had an acute commencement or have been associated with an illness or with tenderness over the femoral vein or deep in the calf, treatment by any form of injection should be avoided. If these patients are left alone for some years they may become fit for treatment. I agree with the statement of Wright (1940):

> Their presence can be inferred when venous circulatory effects develop out of all keeping with superficial veins.

When the Trendelenburg test is being carried out it is rare to find the veins filling up from below. Even then injection methods are not always inadvisable, as Clarkson (1938) has suggested. It seems that clotting occurs so rapidly that rapid entry into the general circulation is not possible.

It is doubtful whether anyone would consider the institution of any form of sclerosing treatment in the presence of incidental skin infection occurring on the leg, of severe general organic disease or of obstruction to the venous return from the leg (for example, from a gravid uterus or an intrapelvic tumour). It is obvious, then, that a good general physical examination of the patient is necessary.

The method has proved very successful in the presence of one or more varicose ulcers, irrespective of size. Rapid healing is to be expected. Nor should the very aged be considered unsuitable. The oldest patient was aged eighty years. The ulcerated condition of his leg meant that constant nursing was necessary. His ulcers healed in between two and three weeks after ligation and injection. When treatment is carried out in the presence of ulcers, constricting bandages and stockings should not be used; they can be used, if desired, when the immediate reaction and mild swelling have subsided. It is usual for the ulcer to heal without further bandaging.

Points in Operative Technique.

A wide area is prepared in the region of the groin. In bilateral lesions only one leg should be treated at once; the other can be dealt with as soon as the immediate reaction has subsided. Everything should be ready before a start is made; the syringe is filled with the sclerosing agent, two aneurysm needles are threaded and a skin suture is ready. The patient lies close to the edge of the table with the leg hanging lower than the body. A small chair or stool supports the foot. After infiltration with local anæsthetic an adequate incision is made over the termination of the long saphenous vein. An incision in the lines of the skin gives a good exposure. Its centre is situated one inch below the inguinal ligament and one inch medial to the pulsation of the femoral artery—that is, one inch medial to the mid-point of the line joining the anterior superior spine of the ilium and the *symphysis pubis*. In practice it is just as easy and quicker to make the incision in the hollow palpable immediately lateral to the anterior border of the *adductor longus* muscle.

The three tributaries of the saphenous vein which lie superficially are identified. They are not ligated until the main vessel has been isolated. In some instances the medial circumflex femoral vein enters the saphenous vein higher than usual; it may be taken for the latter and may receive the full shock of the injection, and a painful swelling of the medial aspect of the thigh may result without a gratifying improvement in the condition of the veins below the knee. This vein passes in a more medial direction than the saphenous vein. Careful dissection more proximally will reveal the true anatomical position. In case of doubt an aneurysm needle is passed around the vein. Gentle tugging can be felt by the fingers placed on the thigh over the line of the saphenous vein immediately above the knee. The three superficial veins which enter the saphenous vein in the site of the wound are then cut between ligatures.

An aneurysm needle is passed around the saphenous vein from either side. No doubt should exist about the safety of the femoral vein itself. There is no need for this vessel to be interfered with in the operation. The leg is elevated and the saphenous vein is tied with the leg in that position. The leg is immediately restored to its former dependent position. Another ligature is then applied a little more distally, the ligature being left long and held by a pair of artery forceps. A third aneurysm needle is passed but not tied. This is the most distal of the three. A short wide needle or a piece of a ureteric

catheter is used on the syringe containing the sclerosing fluid. Despite its apparent simplicity, the injection of the fluid does not always proceed without hitch, at least until experience has been gained. It is easy to inject the fluid beneath the sheath of the vein or to pierce the vein completely. No force is used in the injection, but gravity is allowed to play the major part in diffusing the sclerosing fluid throughout the veins. The use of force will result in the filling of the superficial minute veins, and the result will be a painful leg, intense superficial reaction and a minimum of effect on the condition for which the treatment was instituted. Difficulty is frequently experienced in this respect when the vein is occluded in one or more places in its length by previous treatment. A positive response to the Trendelenburg test should, but does not, mean that the fluid will run down easily. On the other hand, the procedure should go on smoothly and without interruption for fear of immediate clotting. The third tie is now completed below the needle puncture as the needle is removed. Hæmostasis is secured and the skin is sutured with non-absorbable material. No fascial stitch is employed. Great care should be exercised to achieve hæmostasis, since post-operative hæmatomata appear to occur readily in these wounds. The use of a fascial stitch does not seem to affect this, but, on the contrary, seems to interfere with healing by first intention, serum formation being common. After a dressing is applied the leg is allowed to remain hanging down for fifteen to twenty minutes. The diffusion of fluid is assisted by massage in a downward direction. The patient is then permitted to return home, provided he has not to walk far, otherwise some conveyance is necessary. An assistant and good lighting are essential for a satisfactory operation.

In most cases after-treatment consists of moderate physical activity according to the inclination of the patient, inspection of the wound on the fourth day, and removal of the sutures on the seventh day. It is not considered good treatment to confine these patients to bed. Most patients return to work the next day. Male patients formed 73% of my cases, since many were desirous of entering one of the fighting services. These men were able to continue their training with the loss of only a single day.

The Sclerosing Agent.

A rather large quantity (10 to 15 cubic centimetres) of a safe sclerosing solution is the ideal. Small volumes have proved unsatisfactory in my hands. One writer, describing his technique, states that afterwards "injection of the unthrombosed veins is begun". By the ideal method no unthrombosed veins should be left, except in about one case in twelve. I have had experience with 5% and 10% sodium morrhuate solution, quinine and urethane, "Ethamolin" (G.L.) and 10% sodium ricinoleate solution. Sodium morrhuate solution is unreliable in its action, but its main disadvantage is that a good final result is usually achieved at the expense of a severe reaction. The last two solutions mentioned have given the best results and the least worry about complications. Unfortunately sodium morrhuate solution was used in almost half the cases in my care, since other solutions were not available for our use.

The Results of Treatment.

It is intended to discuss the bad results rather than the cures. Approximately one hundred patients have been treated by me, with very satisfactory results in the great majority of cases. The disappointments have been few, but much has been learned from them.

Two immediate results cause the greatest concern—severe local reaction and incomplete thrombosis. The first of these will give a severe fright to the person who has not had previous experience. One would think it possible to gauge the amount of sclerosing fluid necessary from an inspection of the leg. This is not so easy in practice as it may appear in theory. One patient was treated with twelve cubic centimetres of sodium ricinoleate solution into each leg at different times. A moderate reaction resulted, but the clotting was complete. This patient was shown at a clinical meeting; no interruption to his work occurred. Much smaller varicosities have given much greater reactions with correspondingly smaller doses. Usually the thrombosis can be palpated while the patient is still lying on the table. If this is not possible one should expect a failure in the treatment. Apart from this clotting the cardinal signs of inflammation may occur immediately or after an interval of several days. The temperature may rise to 102° F., but, strangely enough, the medical attendant is usually far more worried about the condition than the patient. None has complained about the severity of treatment. In the early days, when elevation of the leg was not employed prior to ligation of the vein, superficial bullæ sometimes occurred over the site of the large pools of blood so frequently seen.

The treatment consists in a curtailment of activity, but not in confinement to bed. The constitutional disturbance is usually mild and requires little or no treatment. A mild sedative, such as aspirin, phenacetin and caffeine powder with one-quarter of a grain of codein phosphate, is sufficient. A soothing application to the veins is advisable according to the fancy of the medical attendant. Glycerin and belladonna, ichthyol and glycerin or lead and opium lotion may prove effective in relieving discomfort. Firm pressure is the best local treatment. The reaction subsides in three or four days. It is stressed in this paper, not because of its seriousness, but because, if effective treatment is to be aimed at, some severe reactions must be expected occasionally. They occurred in eight of my cases. It is useful to be able to warn the patient of the possibility of its occurrence or at least to be able to conceal one's surprise and horror.

If varicose ulcers have already occurred, they will need some attention. They were present in 22% of cases. It has been mentioned already that the application of constricting bandages is neither necessary nor advisable. The ulcers should be kept clean. Lint damped in a solution of sulphanilamide has proved very effective. However, the ulcers have always healed irrespective of treatment.

The presence of unthrombosed veins after treatment occurred in 9% of cases. The results were partly due to faulty technique and inexperience. Previous treatment by injection or interval excision may make the diffusion of the sclerosing fluid difficult. Such treatment had been given in 41% of the cases. It must be emphasized that the main reason for failure to secure permanent and general clotting is failure to secure all the tributaries of the saphenous vein at its termination. The most difficult region to treat is that near the termination of the small saphenous vein posterior to the popliteal fossa. If this does not clot, it is advisable to wait until the first reaction has settled and then to ligate and inject the small saphenous vein separately near its termination. Some difficulty may be experienced in doing this, because the vein occasionally divides into several branches before ending.

If the technique has been faulty, anastomotic channels quickly make their appearance. These are evident in two or three weeks, most commonly on the back of the thigh. Local injection through the skin into unthrombosed veins is then indicated. The method poorly carried out is no advance on previous methods.

Conclusions.

1. There are some general but few local contraindications to the treatment of varicose veins by high ligation and injection. It is not a new method, and with increasing experience is giving satisfactory results.
2. It is impossible to calculate the amount of temporary incapacity which may result from the treatment. The cause of this is a thrombophlebitis which has the usual local and general manifestations.
3. Further treatment is occasionally necessary.

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Reports of Cases.

MENINGO-ENCEPHALITIS COMPLICATING GERMAN MEASLES.

By ALAN B. S. OWEN, M.B., Ch.M. (Sydney), M.R.C.P. (London),

AND

T. M. GREENAWAY, M.B., Ch.M. (Sydney), M.R.C.P. (London), F.R.A.C.P.,
Sydney.

Clinical Record (A.B.S.O.).

A MALE patient, J.O., aged twenty-six years, reported on May 5, 1940, stating that he felt "run down", and asked for a general overhaul. A measly rash was present on the face and body, and the presence of painful, "shotty" glands in the occipital and cervical regions left no doubt concerning the diagnosis of German measles. The patient was not really ill, and in fact had intended to travel to Wollongong, but was persuaded to return home to bed for four or five days. After two days he was complaining of much pain in the small of the back, and also of headache. Two days later (May 9) he was unable to pass urine, and repeated catheterization was necessary. Rigidity of the neck muscles became apparent, and Kernig's sign was present on both sides and the plantar reflexes were extensor in type. The right pupil was slightly larger than the left; both reacted to light. After consultation he was admitted, in the care of Dr. T. M. Greenaway, to the Royal Prince Alfred Hospital.

On his admission to hospital the patient had suffered from headache for four and a half days, and from retention of urine, constipation and weakness for four days. On examination he was seen to be lying flat in bed, apparently very miserable. The pupils were equal and regular; they reacted to stimuli and were moderately dilated. No abnormality was detected in the chest, abdomen, arms or legs. Some rigidity of the muscles of the neck and of the spine was noted; the knee jerks were slightly exaggerated and the plantar reflexes were indeterminate. Ophthalmoscopic examination revealed no abnormality.

On May 12, 1940, lumbar puncture was performed and the cerebro-spinal fluid was found to be under a pressure of 180 millimetres of water; 25 cubic centimetres were withdrawn and the pressure was reduced to 110 millimetres. On May 13, 1940, the headache was troublesome; it was controlled only by morphine. Lumbar puncture revealed a cerebro-spinal fluid pressure of 150 millimetres of water; this was reduced to 100 millimetres by the withdrawal of twenty cubic centimetres of fluid. On May 15, 1940, some improvement was noted, but the patient still required catheterization. One cubic centimetre of "Doryl" was given without effect.

On May 16, 1940, the patient passed urine, and the neck rigidity was less. Lumbar puncture revealed that the pressure of the cerebro-spinal fluid was 130 millimetres of water; it was reduced to 100 millimetres by the withdrawal of 10 cubic centimetres. On May 17, 1940, retention of urine was still troublesome and there was some recurrence of headache.

On May 22, 1940, the patient was much better; he was passing urine freely and had no headache or rigidity. On May 25, 1940, he had no symptoms or signs and was allowed up every day. On May 28, 1940, he was discharged from hospital.

The hospital records show that the protein and globulin content of the cerebro-spinal fluid was raised. The fluid was sterile and contained a normal number of cells. The figures for the total protein content on May 12, 1940, and May 14, 1940, were 80 milligrammes and 30 milligrammes per 100 cubic centimetres respectively.

Blood examination revealed no abnormality; the Wassermann reaction was not obtained. The temperature was never elevated beyond 99° F., and the pulse rate was slow, seldom rising above 76 per minute; several readings below 60 per minute were on the record in the earlier stages.

On June 18, 1940, the patient was seen by Dr. Eisenberg, who reported that the cause of his complaint of diminished vision in the right eye was a retrobulbar neuritis, which was clearing up. In the space of two weeks his vision had improved in the right eye from $^{6}/_{9}$ to $^{6}/_{6}$.

Comment (T.M.G.).

Dr. Owen has asked me to comment on this case, which presents an unusual complication of German measles. As this case was the third that I knew of within the past few years in Sydney, the possibility of increased incidence is of interest. In October, 1937, Dr. R. J. Taylor[1] reported a similar case, and in the same year I saw, in consultation with Dr. Elliott and Dr. Shallard, at Carlton, New South Wales, a patient suffering from meningo-encephalitis following German measles; this patient died. I discussed this with Dr. F. H. Wilson, formerly of the Prince Henry Hospital, Sydney, who informed me that after experience in several epidemics of many hundreds of cases he could not remember having seen such a complication following German measles. The few cases of encephalitis proved invariably to have followed measles (rubeola). On the other hand, Dr. Symington, at present at Prince Henry Hospital, Sydney, informs me that over the past two or three years (including this year's epidemic) there have been three cases of encephalitis following German measles, of which in one only was there any doubt as to the nature of the original rash. This suggests to me that my impression may be correct, namely, that the text-book statement of the lack of complications in German measles (particularly affecting the nervous system) may have to be reviewed after the experience of the last two epidemics.

A painstaking review of the literature by the clinical clerk (Mr. Morris Owen) gave me the information that as far as American authorities were concerned, only seven cases have been reported up to May, 1936, when Merritt and Koskoff[2] added four. With the exception of two case reports[3][4] there are few, if any, references in the English literature, and I am not aware of any cases reported before Dr. Taylor's in 1937 in Australia. In May, 1940, a case was reported from Saint Bartholomew's Hospital, London.[5]

One final point of interest remains, and I put it forward more as a question than as a positive statement. Many general practitioners have informed me that "eye pain" has been more severe in the past few epidemics. In the case here reported there was apparently some retrobulbar neuritis. If this ocular pain is at all related to that commonly seen in retrobulbar neuritis, may it not indicate a predilection on the part of the virus for the tissues of the central nervous system? It is to be noted that in the majority of cases reported recovery occurred, and that there is apparently an absence of those changes which follow *encephalitis lethargica*. The increased protein content of the spinal fluid is so constant as to make one suggest that every patient suffering from German measles exhibiting severe "eye pain" or headache should be submitted to lumbar puncture—a procedure which may well throw still more doubt on the rarity of involvement of the central nervous system in German measles. Apart from diagnostic purposes, lumbar puncture has a definite therapeutic value.

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PNEUMOCOCCAL MENINGITIS TREATED WITH SULPHAPYRIDINE.

By R. F. LOWE, M.B., B.S.,
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Clinical Record.

C.P., AGED forty-one years, was admitted to the Alfred Hospital about 10 p.m. on July 26, 1940. He was stuporose and unable to give a clear history; he responded to direct questions by answers of one or two words. He had no definite complaints, and said that he had been ill for months. He could protrude his tongue and with his eyes follow a moving finger.

On examination the pupils were small, but they were equal and reacted to light. There was pronounced limitation of neck flexion, but the head could be rolled from side to side. Kernig's sign was indefinite. The knee and ankle tendon reflexes were exaggerated, but both plantar reflexes were extensor in type. Examination of the heart, lungs and abdomen revealed no abnormality. There was no

papilloedema. Lumbar puncture was performed as soon as possible. The pressure was in excess of 250 millimetres of cerebro-spinal fluid (the limit of the manometer). The cerebro-spinal fluid was thin, but turbid; it contained 13,000 cells per cubic millimetre, the globulin content was increased, and a stained film showed most of the cells to be polymorphonuclear leucocytes, although no organisms were seen.

The patient was given orally two grammes (four tablets) of sulphapyridine ("M & B 693"), and this dose was repeated every four hours for four doses; then one gramme was given every four hours. The next day the cerebro-spinal fluid pressure was still beyond 250 millimetres of cerebro-spinal fluid. Culture media were inoculated from the fluid, which was allowed to drip directly from the needle onto warmed blood agar and broth; from these pneumococci were grown. The third day after the patient's admission to hospital the cerebro-spinal fluid pressure was still 250 millimetres of cerebro-spinal fluid. The sulphanilamide content of the cerebro-spinal fluid was estimated, and as it was only three milligrammes *per centum* the dose of sulphapyridine was raised to 1·5 grammes (three tablets) every four hours. A level of about five milligrammes *per centum* in the cerebro-spinal fluid was aimed at. Pneumococci were again grown on culture. The next day the cerebro-spinal fluid pressure had fallen to 180 millimetres and the number of cells to 1,500 per cubic millimetre; the sulphanilamide content of the cerebro-spinal fluid was 5·6 milligrammes *per centum*. During this time the patient's condition had improved greatly. There was no vomiting and he was taking the sulphapyridine and fluids very well. The neck stiffness was much less and he was quite clear in thought. His only complaint was some headache. He continued to improve in every way.

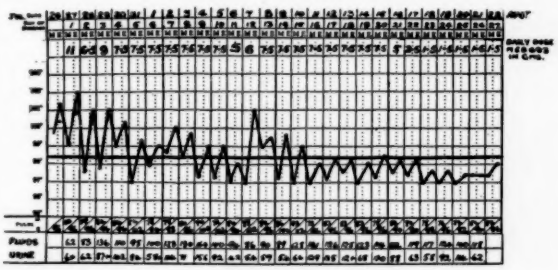
On the fifth day an attempt at culture from the cerebro-spinal fluid yielded no pneumococci, and the number of cells in the cerebro-spinal fluid was becoming progressively less. His temperature gradually subsided, and by the eleventh day was below normal. The dose of sulphapyridine was then reduced to one gramme every four hours.

The following day (the twelfth day of illness) his temperature suddenly rose to 101° F., his headache became very severe, and he vomited. The cerebro-spinal fluid pressure was 145 millimetres of cerebro-spinal fluid, but no cell count or attempt at culture was made, although the fluid was macroscopically turbid, whereas two days previously it was clear. He was put back to 1·5 grammes (three tablets) of sulphapyridine every four hours.

Three days after this exacerbation (fifteenth day) the cerebro-spinal fluid pressure was 210 millimetres of water and the cells numbered 324 per cubic millimetre; but the temperature was again falling and the patient's condition was symptomatically improving. On this day pneumococci were again grown on culture from the cerebro-spinal fluid. This time the pneumococci were typed and found to be Type XX.

Thereafter the patient's condition continued to improve, the headache disappeared, the neck stiffness gradually became less, and he felt very much better.

The dose of sulphapyridine was not reduced until he had been afebrile for a week, when it was gradually diminished. The number of cells in the cerebro-spinal fluid diminished, and just before his discharge from hospital a lumbar puncture showed the cerebro-spinal fluid to be under very low pressure and no cells were seen. The neck and spine stiffness had completely gone, the patient had been walking about, he felt quite well and appeared cured.



In all, the patient had had 333 tablets, or 166·5 grammes of sulphapyridine; he had vomited only twice and had shown no pronounced toxic reactions; the number of leucocytes in the blood had been maintained at about 13,000 per cubic millimetre, most of the cells being polymorphonuclear.

When he was well the patient gave the following history. He worked as a cook, and about one week before his admission to hospital he had what he thought was a bad cold lasting two or three days. He did not feel really well, but returned to work. After about four days he felt "off colour", and on returning home from work went to bed. He thought he must have been delirious, as he knew he was ill, but did not know what to do. He slept little that night, and in the morning he took a taxicab to his sister's place, where he went to bed. During the day his delirium increased and he did not remember being brought to hospital.

Discussion.

The case is interesting, as it shows the persistence of the infection in the cerebro-spinal fluid despite large initial doses of sulphapyridine. A study of the cerebro-spinal fluid sulphanilamide estimations shows not only a pronounced variation, but on many occasions a very low concentration in the cerebro-spinal fluid compared with that in the serum, despite very heavy doses. (The blood for serum investigation was withdrawn immediately after lumbar puncture.) Table I

TABLE I.
Dosage of "M & B 693" and Pathological Findings in Pneumococcal Meningitis.[1]

Day.	Cerebro-spinal Fluid.[2]						Sulphanilamide Content of Serum. (Milligrammes *per centum*.)	Fluid Intake. (Ounces.)	Output of Urine. (Ounces.)	Dosage of "M & B 693" (0·5 Gramme Tablets).[2]	Number of Leucocytes per Cubic Millimetre of Blood.[3]
	Organisms Grown on Culture Media.	Pressure (Millimetres of Water.)	Cells per Cubic Millimetre.	Sulphanilamide Content. (Milligrammes *per centum*.)	Protein Content. (Milligrammes *per centum*.)	Chloride Content. (Milligrammes *per centum*.)					
Admission to hospital		250+	13,000								
1	Pneumococci.	250+		Trace.			1·0	62	6+	4, 4, 4, 4, 2, 2, 2	
3	Pneumococci.	250+		3·0	0·07	0·68	8·0	136	81+	2, 2, 3, 3, 3, 3	12,000
4		180	1,500	5·6			16·0	110	102	3 every 4 hours	
5	No growth.	145	300	1·5			3·5	95	84	3 every 4 hours	
7		190	48	1·5	0·06	0·70	4·0	123	114	3 every 4 hours	13,000
10		175		1·5			3·0	100	92	3 every 4 hours	
12		145		2·5				86	54	2, 2, 2, 3, 3, 3	
15	Pneumococci (Type XX).	210	324	1·4	0·07	0·70	4·8	128	66	3 every 4 hours	
20								120	114		13,000
25	None.	190	30		0·06			140	114	1, 1, 1	
48	None.	Low.	None seen.		0·06	0·74				None.	

[1] On the third day of illness the sugar content of the cerebro-spinal fluid was 0·047%, and on the forty-eighth day it was 0·061%.
[2] The total dosage of "M & B 693" was 166·5 grammes (333 tablets).
[3] Neither the blood nor the cerebro-spinal fluid reacted to the Wassermann test.

shows no variation in fluid intake or output sufficient to account for this.

Two other patients suffering from primary pneumococcal meningitis were admitted to the Alfred Hospital just before and just after this patient, but both died about four days after their admission.

Summary.

A case of primary Type XX pneumococcal meningitis is described. Treatment with sulphapyridine was successful, but difficulties during treatment are described. The necessary dosage was very large; a total of 166·5 grammes (333 tablets) was given, spread over one month, but no pronounced toxic symptoms occurred. The concentration of sulphanilamide in the cerebro-spinal fluid appeared very variable and was often surprisingly low.

Acknowledgements.

I am indebted to Dr. J. F. Chambers for permission to report this case; to the laboratory staffs of the pathological department of the Alfred Hospital and Baker Institute for help with the investigations; and to the Commonwealth Serum Laboratories for typing the pneumococci.

Reviews.

DERMATOLOGY IN GENERAL PRACTICE.

THE collaboration of the well-known American dermatologists Sulzberger and Wolf has resulted happily in their new "Dermatologic Therapy in General Practice".[1] Both they and their future readers are to be congratulated.

All the commoner dermatoses with which the general practitioner comes in contact are considered. No attempt has been made to burden the text with rarities. Although therapy is the major object, it has not been forgotten that accurate diagnosis is essential if use is to be made of the excellent therapeutic measures here advocated.

Accurate descriptions of each of the dermatoses discussed are given, as well as many differential diagnostic tables. Principles of diagnosis initiate the work, but no attempt is made to go into the minute detail of specialist works. In the section on general dermatologic management are a large number of sound basic prescriptions, as well as details of methods of application. The section dealing with physical methods outlines only X-ray and radium therapy, as is proper, but a larger amount of space is devoted to ultra-violet rays, which are available to large numbers of general practitioners.

The dermatoses are discussed in groups of diseases which are more or less allied—for example, "Bullous and Vesicular Dermatoses".

The portion dealing with "infantile eczema" in the chapter on atophic dermatitis may be regarded as one of the best ever written on this most difficult subject. Each chapter is accompanied by a page or pages of illustrations, demonstrating the various disorders and indicating the points in differential diagnosis. Although small in size, they are very clear and have been well selected. Other illustrations demonstrate useful types of dressings.

The dermatologist will appreciate the wealth of information contained in this book, and the volume must be regarded as an essential part of his library.

CLINICAL ELECTROCARDIOGRAPHY.

CARDIOLOGY is highly specialized, particularly in regard to the fundamental electrochemical physiological processes involved in myocardial contractions. A new work on clinical electrocardiography by Scherf and Boyd, of the New York Medical School, traverses these problems with clarity and accuracy.[2]

This publication is very well balanced, dealing with the rare as well as the common disturbances of the cardiac mechanism. The discussion is logical, stimulating, well illustrated and documented. The authors do not hesitate to express their own viewpoint, even when contrary to authoritative opinion. That they are so entitled is obvious from the volume of their own experimental and clinical observations. Although this book is not primarily for beginners, sufficient ground work will be found to make the advanced work understandable. The limitations and pitfalls are duly emphasized and a useful amount of clinical and therapeutic material is included. It is well to be reminded that the effects of respiration include an altering of the cardiac axis by the ascent and descent of the diaphragm, and also a change in the relative position of the heart in the narrow or in the broad thorax. Phasic variations in *QRS* complexes may occur in respiration. A small amplitude of Lead III as well as inversion of *T*III are usual with a high diaphragm, just as a small Lead I occurs in the "dropped" heart. Both findings are to be anticipated in accordance with measurements based on Einthoven's triangle. It is equally essential to be aware of such normal variations as negative *T*I in left-sided hypertrophy and to realize that not every inverted *T* or every depression of the *R(S)T* segment signifies coronary occlusion.

Doubtful cases of *angina pectoris* may be unmasked if electrocardiograms are taken after suitable exercise.

The authors find serious objections to the current theory of circus movement for explaining auricular flutter and fibrillation. They are in agreement with the majority of cardiologists that paroxysmal tachycardia is due to a chain of extrasystoles. The discussion on rarer rhythms is particularly instructive and stimulating, as, for example, atrio-ventricular rhythms, interference dissociation and parasystole. An extensive bibliography and over 200 illustrations, mostly electrocardiographs, are given. A misprint of one million instead of one millivolt was noted at the foot of page 23. There is no question that this publication will be warmly welcomed by clinicians and research workers alike. It can be recommended without hesitation to all those interested in the absorbing subject of cardiology.

AN OUTLINE OF VIROLOGY.

"THE VIRUS: LIFE'S ENEMY", by Kenneth M. Smith, is planned to give for the general reader an account of the present position of virus research.[1] The author largely avoids technicalities and leads the reader on a pleasant ramble through the highways and byways of his subject.

An introduction touches on a few outstanding historical events that have led up to our present knowledge. Next, the author describes how viruses are studied; how their size is measured by filtration, by photography with ultra-violet light and by the ultra-centrifuge; how their shape varies, some being spherical, others rod-shaped; how certain plant viruses are particles of protein and may be prepared in pure crystalline form. As to the nature of viruses, it is suggested that they "form a series of which the more complex fall on one side and the less complex on the other side, of the shadowy boundary which separates the living from the non-living".

One chapter bears the colloquial title: "How Viruses Get About." Spread by injection is exemplified by rabies, contact spread by, *inter alia*, the virus of tobacco mosaic (the most infectious plant virus known). Experiments are described which prove tobacco-necrosis virus to be spread by water and air. Insect transmission is important for both animal and plant viruses—the peach or spinach aphis, for instance, can transmit twenty-one separate viruses.

The author muses on the relation of a virus to the cell it inhabits, and is led on to discuss the nature of cell inclusions, the stimulating or necrosing action of the virus, the usefulness of tissue culture for growing viruses, variations in viruses and the appearance of new virus diseases.

Descriptions are given of a number of virus diseases. The selection is representative, examples being chosen from those affecting man, domestic animals, birds, fishes, insects, plants and bacteria. The tumour-forming viruses are discussed and the hope is expressed that further insight into the nature of viruses will give "a clue to the dark secret of the malignant tumours".

In a chapter on prevention and control there are listed the different methods of producing immunity. Smallpox, rabies and distemper are quoted to exemplify their successful application. Influenza, in spite of much work, still awaits a method of control. Prevention of certain virus diseases may be sought by attacking their insect vector. The plant viruses have their own problems of control.

The book is readable and well balanced. For the intelligent layman or the worker in some other branch of science it sets out in a pleasant manner and in brief compass the main features of the biology of the viruses.

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[1] "Dermatologic Therapy in General Practice", by M. B. Sulzberger, M.D., and J. Wolf, M.D.; 1940. Chicago: The Year Book Publishers. Demy 8vo, pp. 680, with illustrations. Price: $4.50 post paid.

[2] "Clinical Electrocardiography", by D. Scherf, M.D., and L. J. Boyd, M.D., F.A.C.P.; 1940. London: William Heinemann (Medical Books) Limited. Medium 8vo, pp. 374, with illustrations. Price: 25s. net.

[1] "The Virus: Life's Enemy", by K. M. Smith, F.R.S.; 1940. Cambridge: The University Press; Melbourne: G. Jaboor. Crown 8vo, pp. 188, with illustrations. Price: 7s. 6d. net.

The Medical Journal of Australia

SATURDAY, NOVEMBER 23, 1940.

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SCEPTICISM AND AUTHORITY.

SCEPTICISM comes from the Greek word σκέπτομαι, which in Liddell and Scott's lexicon is stated to mean "to look about, look carefully, spy", and also of the mind "to look to, view, examine, consider, think on". Scepticism, strictly defined in the philosophical sense, is the denial of the possibility of knowing reality; in other words, the human mind, being human, can never comprehend the ultimate nature of things. Carried to its extreme, scepticism is absurd. For example, doubt could be raised as to whether things around us are actually what, according to our methods of thought, they appear to be. Obviously, while our individual experiences may be judged by their relationship to experience in general, experience in general cannot be judged in relation to anything outside itself. It has been stated that the real function of scepticism in the history of philosophy is relative to the dogmatism which it criticizes, and in ordinary usage scepticism suggests doubt in the validity of commonly accepted beliefs. Scepticism in science, and particularly in the practice of the medical sciences, is probably the greatest of all stimuli to inquiry into the nature of observed processes and the reason for their happening. Without it there would be little progress and the resulting stagnation of ideas would be debasing in the extreme, not only to medical science itself, but also to those who carried the label of its practitioners.

The greatest obstacle to the adoption of a healthy scepticism in medicine is authority; not even laziness can compete with it. Authority in medicine is the authority of the written, the printed, word, more than that of the spoken word, and it is the authority sprung from the reputation of him who first wrote it. It is unfortunately true that for some medical people not even reputation is needed to give the stamp of authority to what is written. Some graduates in medicine, people who ordinarily pass as intelligent, will accept without question anything that appears in a book; short of providing a rigid censorship of the books that these people read, it is difficult to know what we can do to help them. Those who rely on reputation as well are in worse case; to endow them with scepticism we have to break down a form of hero worship that is not justified in the length to which it is carried. The author heroes of medical literature are to the cynic a clannish crowd, for one copies from the other a dogmatic statement that he in turn purloined from an earlier member of the clan. Such is reputation that the hero worshippers never bother to verify the statement, and a "fact" is said to be established. Reference to this subject has been prompted by the receipt of the Linacre Lecture for 1940 by Professor W. W. C. Topley.[1] This lecture, which was discussed in *The British Medical Journal* as long ago as last July, is entitled "Authority, Observation and Experiment in Medicine". It is unfortunate that Australians have to wait more than three months to receive an important document like this; probably war conditions are responsible. Although *The British Medical Journal*, which is received by all readers of this journal, gave an excellent summary of Topley's views, we think that reference must be made to it in these pages for two reasons—first, because readers should be reminded that this excellent discourse is available in brochure form for a modest sum, and secondly, because Australian medicine makes too deep an obeisance to authority and is ripe for the sowing of seeds of scepticism.

Almost in his opening remarks Topley makes a novel departure from what we have learned to expect in lectures of this kind, a departure that is almost as refreshing as it is germane to his argument and to the dissemination of scepticism. Lectures and orations bearing the name of a medical graduate who is dead generally begin with a pæan extolling the virtues and attainments of the deceased. This panegyric may be true, and a great deal of it generally is; but sometimes it is fulsome, and as a rule after a season or two, unless the orator is particularly gifted, the remarks become stereotyped and are likely to be boring to the audience. But Topley is not a singer of praise, for he tells us that Linacre's was from the medical point of view "the high tragedy of the wrong thing supremely well done". Linacre's great achievement in medicine, we are told, was the translation of much of Galen's Greek into admirable Latin. Galen had dominated medicine for thirteen hundred years, and Linacre was in bondage to Galen; indeed, he "spent his labour in putting a brighter polish on the fetters that held medicine in thrall". This is a crushing indictment of the man who has to his undying credit the foundation of the Royal College of Physicians of London. We need not follow Topley further in his account of the influence that Linacre had on the infant days of this august body, nor in the contrasting picture that he draws of Paracelsus, the mediæval alchemist, who "knew better than Linacre what was wrong with medicine". The public burning by Paracelsus at Basle of the works of Galen and Avicenna was "as symbolic of freedom as the storming of the Bastille"; and Vesalius, Topley thinks, is the one man in the direct apostolic succession of medicine who marked the transit from the Middle Ages to a new world of human thought. "He consciously, and in the teeth of opposition, cast off

[1] "Authority, Observation and Experiment in Medicine", by W. W. C. Topley, M.D., F.R.C.P., F.R.S. (Linacre Lecture, 1940); 1940. Cambridge: The University Press; Melbourne: G. Jaboor. Crown 8vo, pp. 46. Price: 1s. 6d. net.

authority in favour of systematic observation". With William Harvey "we take the decisive step, away from authority, through observation, to controlled experiment". What observation and controlled experiment have done for medical science need not be extolled in this place; nor is it necessary to show that this sequence must be continued in all future effort. What we probably do not realize is that the stages of the history of medicine are reflected in the life of every medical student. At first he starts his journey by accepting the didactic instruction of his teachers and not questioning their authority, but as he makes progress he learns to keep an open mind, to accept what he is told with reservation, and to rely more and more on observation and experiment. The really successful medical teacher is one who trains the student to think for himself, to make his own observations, to draw his own conclusions and to test them in the harsh light of experience. When Paul the apostle wrote to the Thessalonians that they should prove all things and hold fast that which was good, he might have been writing to the doctors of Thessalonica and so to the doctors of every later age. All medical men know that there is no standing still in the scientific life; either progress is made or stagnation and retrogression take place. The object then must be an increase of effective knowledge. Here practitioners of medicine may follow Topley when he writes:

> There is only one way of increasing effective knowledge: the method of working hypothesis, prediction and trial. On the basis of a series of observations we evolve a hypothesis. On the basis of this hypothesis we predict that, under specified conditions, we shall be able to observe a specified event. We attempt to secure the conditions and see whether our prediction comes true. If it does, our hypothesis becomes more probable. If it does not we may discard our hypothesis, or alter it, or doubt whether we have really secured the specified conditions, or whether our final observation has been correctly made, and we may start again. What we must never do is to leave our hypothesis untested, or neglect the results of our tests without showing why they failed. This essential process underlies the work of the clinical observer just as it underlies that of his colleague in the laboratory. The physician, on the basis of a series of observations made on a sick person, forms a working hypothesis which he labels a diagnosis. By deduction from his hypothesis he makes a prediction which he labels a prognosis: the patient will recover, wholly or partially, or he will die, or he will respond to such and such treatment in such and such a way. The physician becomes a sound scientist, and surely a sound clinician, if, and only if, he completes the process by noting whether his prediction comes true. This means a careful follow-up of his patients when they live, or, if they die, a personal attendance at a post-mortem if this can be obtained.

Truth may be likened to a many faceted, finely cut and highly polished precious stone that is hidden from man, who, with his three-dimensional mind, will never be able to see it as it is in its four-dimensional completeness; before he can do so he will need to rise to a higher plane than that of his present existence. He can, however, glimpse one of its facets occasionally if he does not allow it to be obscured by a smoke screen raised of his own obtuseness. When he does catch such a glimpse he has to be careful lest he attach too much importance to his momentary vision, forgetful that, could he but see it, there is probably hard by another and brighter facet that will make the first pale into insignificance and alter the relationship of all that was illuminated by it. It is not only in medicine that man should strive for an open and receptive mind.

Current Comment.

DENTAL DISEASE IN THE ISLAND OF LEWIS.

In the issue of November 2 last reference was made in these pages to a study by Sognnaes and White of the factors influencing dental caries in a group of American children. The study tended to show that influences within parental control were largely responsible for the appearance of caries. The subject is well worn and no reliable and final conclusions are likely to be reached about it at present. It would almost appear as though apology should be offered for further reference to this subject after such a short interval of time. Two recent reports from the Medical Research Council of the Privy Council of Great Britain, however, are so striking that a short account of the investigations described in them must be placed on record in this journal, more especially as Medical Research Council reports are not readily available to Australian readers.

The first of these Medical Research Council reports is that of an investigation carried out by J. D. King into the dental condition of children in the island of Lewis, the northernmost island of the Outer Hebrides.[1] For comparison a number of children were examined elsewhere by the same standards—in West Ross-shire, London and Sheffield. The investigation was undertaken because of a general belief that the islanders had better teeth than the inhabitants of other parts of Great Britain; this belief proved to be well founded.

> It is not a case of a mere margin of difference, appreciable as a result of close statistical analysis, but of a striking contrast which had previously attracted attention although precise evidence was lacking . . . Moreover, the contrast was found in Lewis itself, between the rural and the urban children.

The island of Lewis covers an area of 417,460 acres, and at its nearest point it is only about 24 miles west of the Scottish mainland. The coast is deeply indented. Brown trout abound in the fresh-water lochs, and salmon are plentiful; but salmon is to some extent preserved. The land is rather flat, and the surface consists largely of peat and is swampy. Extremes of heat and cold are not encountered, owing to the proximity of a branch of the Gulf Stream. The rainfall is heavy and gales occur, chiefly in winter and spring; fog and mist are not common. The fisheries and the tweed industry are the people's chief sources of income. Potatoes, oats, and some barley, wheat, turnips and onions are grown; green vegetables and fruit are not much used. Cattle and sheep are raised. In recent years condensed milk has been introduced, along with other modern commodities, so that the production of milk, butter and cheese has steadily fallen, although a number of the crofters still keep some poultry. Stornoway is the capital and the only town, and its harbour is the centre of the herring industry; there are two herring seasons, lasting from six to nine months of the year.

The number of children examined in the island of Lewis was 1,530; this figure included town-bred and country-bred children. The children examined in West Ross-shire, London and Sheffield numbered 566. The procedure adopted was as follows:

> A separate chart was used for each individual, the mouth being examined with an illuminated mirror and probe. By means of appropriate symbols and other notes, details were recorded of the presence and state of eruption of the teeth, alignment and occlusion, presence and extent of dental caries, surface structure of the enamel, attrition, condition of the gums, presence and amount of tartar deposits, etc. In addition, *L. acidophilus* estimations were made from stimulated saliva samples of 30 cases.

Dealing first with tooth structure, King recognizes two types of hypoplasia. These are: (i) "M-type hypoplasia", used for "defects not easily visible to naked eye, but readily detected by a probe", and (ii) "G-type hypoplasia", which includes "defects clearly visible to the naked eye". This was the classification used by M. Mellanby in her

[1] J. D. King: "Dental Disease in the Island of Lewis", Medical Research Council of the Privy Council, Special Report Series, Number 241, 1940

work on diet and the teeth. King found that the teeth of the country-bred children in Lewis, in particular those of the south-east coastal districts, were much less prone to the M type of hypoplasia than were the teeth of the town-bred children and those living in West Ross-shire, London and Sheffield. Hypoplasia of the G type was infrequent, and was distributed at random amongst the children, regardless of their urban or rural dwelling. Previous work by M. Mellanby and her colleagues had shown that the structure of the teeth was intimately connected with their freedom from and susceptibility to caries. King found that only 2·0% of the deciduous second molars of moderately good structure were carious, but 87·5% of those with severe M hypoplasia were diseased. Of the 1,140 country-bred children of Lewis, 25% failed to show evidence of dental caries when carefully examined by means of an illuminated mirror and probe; but less than 5% of the 390 town-bred children were free from dental caries. Of the 263 primary school children attending six schools along the south-east coast, nearly 40% were free from dental caries, and at one school the figure was 50%.

The difference between the condition of the teeth of the rural, and especially the south-eastern rural, children and those in the primary schools of Stornoway, West Ross-shire, London and Sheffield (in which only between 1·9 and 6·3 per cent. of mouths were unaffected by caries) is one of the most striking results of the investigation, especially when considered in relation to tooth structure . . . On consideration of the geographical distribution of the high and low caries incidence groups, bearing in mind the possible influence of the economic factor, it would seem that the healthiest teeth were to be found in those rural areas of Lewis most remote from modern influences; and therefore that, as in previous studies of communities in other parts of the world where caries was less rife, the comparative freedom from disease was in some way related to the less artificial mode of living of the people.

Discussing the low incidence of dental caries, King remarks that "it is reasonable to suppose that the relative freedom from dental caries of certain communities . . . may be due to some factor or factors common to all, and on this assumption various hypotheses have been evolved, most of which are concerned with diet. Little serious attention, however, has been paid to the possible influence of tooth structure upon caries susceptibility". The investigation revealed a fairly close association between the "surface structure" of certain teeth of both dentitions, selected for examination, and their susceptibility to caries. The teeth of the Lewis rural children, especially those from the south-eastern portion of the island, were found to be of undeniably better surface structure and much freer from caries than were the teeth of children in the urban districts of Lewis, West Ross-shire, London and Sheffield. King argues that it is thus justifiable to infer that the structure of teeth, "and the nutritional factors which control it", are at least partly responsible for the "comparatively low" incidence of dental decay in the country districts of Lewis and its "high prevalence" in the other districts. This is in agreement with the conclusions arrived at by M. Mellanby and her colleagues (1918-1934). King points out the value of further similar investigations. He also remarks that "on many occasions twins with differing caries susceptibility have been cited as disproving the structural theory. In the present investigation it has been shown that the tooth structure of twins may also differ, and that its association with caries still holds good". One point is specially to be noted, and that is that the connexion between hypoplasia and caries holds good only for hypoplasia of the M type. Earlier workers considered only the gross or G type of hypoplasia and failed to look for hypoplasia of the M type. Grossly hypoplastic teeth were found to be sometimes carious and sometimes non-carious.

The question of diet and its connexion with a good dental condition is next discussed. King begins by stating that it is at present believed "that a liberal supply of fat-soluble vitamins and mineral salts is largely responsible for healthy teeth, in that it helps to produce teeth of good structure and hence to promote resistance to the carious agencies after tooth eruption. Such effects may also be attained indirectly by a low carbohydrate consumption, which again increases the proportion of protective foods in the diet." It is at this point that the dietary investigation undertaken by E. P. Cathcart, A. M. T. Murray and J. B. Beveridge[1] becomes of importance. These workers studied the diets of 23 families; the men were mainly crofters, although in most instances they had other activities, such as fishing. Cathcart, Murray and Beveridge give the following information about the diet taken in the island of Lewis:

It will be noted that the Lewis intake of protein is slightly above, and the intake of fat definitely above, the corresponding Highland figures; and that the carbohydrate intake is nearly 100 grammes per man per day below that of the Highland diets. As a result, the percentage of total calories yielded by protein and fat is very definitely higher. The percentage of first class protein in the Lewis diets is approximately 10 per cent. greater than in the Highland studies . . . the intake of the three minerals is definitely above the commonly accepted standards, and . . . in Lewis the intake of lime is slightly but not significantly greater than that of the families on the mainland . . . more mutton is consumed than beef; all the families ate fresh fish; the consumption of cheese, sometimes in the form of ordinary cheese but more often as fresh home-made cottage cheese ("crowdie"), is higher; and the striking fact that although 74 per cent. of the families used root vegetables none of them used leafy vegetables . . . All the Lewis families consumed fresh fish, fatty fish evidently being preferred to white fish. Even the consumption of preserved fish was higher than that in the summer Highland diet. More cheese, too, was eaten by the Lewis families; incidentally it may be remarked that five times more crowdie than actual cheese was eaten. The intake both of eggs and of fresh whole milk was slightly lower than on the mainland. The use of tinned milk was negligible in both areas. More oatmeal was eaten in Lewis, but much less white bread although the consumption of "tea" bread was remarkably high. The islanders ate less sugar and jam than the mainland people; they also consumed a smaller quantity of potatoes, but, curiously enough, a slightly greater amount of fresh fruit.

King remarks that it is a reasonable inference that the food consumed by the families, which has a high content of fat-soluble vitamins and minerals, "has contributed in a large measure" to the good dental condition of the children investigated. At the same time he issues a warning that inferences drawn from the data obtained should be treated with caution; the investigation could not be by any means exhaustive. Information was obtained chiefly by general inquiries and *questionnaire*; but the diets taken by the children examined by Cathcart and his colleagues is considered to be about the average diet of the rural children in Lewis. Variations must occur according to the amount of fishing, farming and other activities carried on, and also to the distance from the town of Stornoway. The teeth of the urban children were much more hypoplastic and caries was much more common; the diets of these children included much more white bread, margarine and other such foods, and less of the "protective" foods containing fat-soluble vitamins and minerals. There has also been a decrease in the number of cows in milk on the island during recent years, and King considers that this decrease, together with the increasing use of artificial foods, may have had a bad effect on the teeth.

In this respect it is interesting to note that even during the present generation an indication was found that the permanent teeth of the older country-bred children attending the Stornoway secondary school were of better structure than the corresponding teeth of the younger children from the same type of district.

Inquiries into diet revealed no significant difference in the amount of carbohydrate taken by the rural and urban children examined in Lewis. It is interesting that potatoes and refined white flour were taken in considerable quantities by both groups of children, while sugar in one form or another was commonly used. The children appeared not to eat so many sweets (such as chocolate and toffee) as the children of London and Sheffield; but the quantities consumed did not differ to any great

[1] E. P. Cathcart, A. M. T. Murray and J. B. Beveridge: "Studies in Nutrition: An Inquiry into the Diet of Families in the Highlands and Islands of Scotland", Medical Research Council of the Privy Council, Special Report Series, Number 242, 1940.

extent between the rural and the urban children, and it will be remembered that the rural children of Lewis were relatively caries-free. Moreover, in both groups there was a "significant lack of hard, fibrous and so-called 'detergent' foodstuffs"; and as dental attrition was scarcely present, it seems that differences in susceptibility to dental caries do not depend upon the hardness or softness of the food. Examination of the saliva of 20 caries-free children and of 10 children with caries for the presence of *Lactobacillus acidophilus* gave indefinite results. King draws attention to the small number of children investigated in this connexion; but he concludes that "the varying dental conditions on the island can scarcely be attributed solely to local stagnation and fermentation of carbohydrate food debris in the mouth". Finally, King mentions two other factors that have been considered to play a part in susceptibility to dental caries—the composition of the drinking water and heredity. With regard to the water supply, it was found that children living in some of the villages obtained their water from the same source as the town of Stornoway; and the village children were comparatively free from dental caries, while the urban children were highly susceptible. This acquits the water supply, at least in Lewis. With regard to heredity, King remarks that "it is difficult to see how heredity can explain the difference in the incidence and extent of caries in the rural and urban districts". He concludes that the comparative freedom from dental decay enjoyed by the rural children of Lewis appears to be due to the superior structure of the teeth, which in turn can be attributed to the standard of nutrition of the children.

The examination of the children for gingivitis and the deposition of tartar gave surprising results, for "in both the Lewis rural and urban children gingival lesions were significantly more common than in the London and Sheffield children and slightly more so than in West Ross-shire". King wonders whether this can be attributed partly to the fairly low consumption of fruit and green vegetables. While no instances of scurvy were found, it is admitted that the children were not examined from this point of view; the inspection was carried out with a mirror and probe, and it is possible that the disease is present in mild form. The investigations of the diet made by King in the course of his survey and by Cathcart, Murray and Beveridge appear to indicate a moderately low intake of vitamin *C*, although the intake must be almost adequate, since such large quantities of potatoes are consumed. The deposition of tartar was greater when the gingivæ were diseased; but there was no evidence that gingivitis and the deposition of tartar were closely associated. The investigation showed, moreover, that there was no connexion between gingivitis and the deposition of tartar on the one hand and susceptibility to or freedom from dental caries on the other. With regard to the shedding of the deciduous teeth, King found that the rural children in Lewis retained these teeth for periods much longer than usual; for instance, he found that at the age of fourteen years 18% of the lower second deciduous molars were still present. He suggests that the superior structure of the teeth is the reason for this longer functional period. King also noted "significant but not uniform" variations in the occlusion of the deciduous canine teeth and the permanent first molars, and also in the alignment of the permanent incisors.

> Whether or not these variations were due to nutritional or physical influences must for the present remain speculative. It may be that the size of the jaws and the eventual position of the teeth are more sensitive to external influences than are their actual structure and composition . . . it is possible that while the nutritive qualities of the diet may be sufficient to promote fairly good *calcification*, as in the case of the Lewis rural children, the soft nature of the food, common to *all* of the children in this survey, may provide an insufficient stimulus to bone *growth* and thus account for the 23·2 to 30·8 per cent. incidence of occlusal abnormalities and the varying extent of misalignment of the permanent incisors. Such an explanation, however, can only be regarded as extremely tentative and must be submitted to further clinical and experimental investigation.

In about one-quarter of all the children examined there was a space between the upper permanent incisors; but in two cases only could this condition be ascribed to abnormal growth of the *frænum labii* or other tissues. An inquiry into the duration of breast feeding in Lewis revealed that 101 caries-free children had been breast fed for an average of 10·1 months (longest period 24 months) and 95 caries-active children had been breast fed for an average of 8·5 months (longest period 18 months). King calls attention to the unavoidably inexact method of collecting the data about breast feeding, and suggests that further work is necessary before the value of the results can be determined. Finally, the examination of tonsils made by King revealed that although the children of the Lewis rural and urban districts and of West Ross-shire were less affected by disease of the tonsils than were the children of London and Sheffield, further work was required before the results could be considered significant.

CONTROLLING THE ACIDITY OF THE URINE.

IT is often taken for granted that the acidity of the urine can be altered at will by dietary means. For reasons of greater or less validity diets are sometimes prescribed with the idea of making the patient's urine constantly very acid or constantly alkaline, usually with indifferent success, as may be found if the results are checked. It is well known that diurnal variations occur in the acidity of the urine; there is said to be an "alkaline tide" shortly after meals, which is ascribed to the alkalæmic tendency produced by the secretion and loss from the blood of the acid of the gastric juice; a few hours after this there is an "acid tide", attributed to the acidæmic tendency resulting from the secretion of the alkaline juices of the pancreas and small intestine. When drugs are employed to support the action of the diet, or in place of it, profound changes in metabolism may sooner or later be set up, which have no place in the scheme of treatment, and the patient may even experience the unpleasant symptoms which constitute the clinical picture of acidosis or alkalosis.

M. A. Bridges and Marjorie R. Mattice,[1] of Columbia University, have recently reported the observation that if the urine is collected at intervals throughout the twenty-four hours for a number of days and the hydrogen ion concentration of each specimen is represented graphically, a curve is constructed which tends to assume a similar shape day after day. This shape is more or less characteristic for the individual; so much so that with a limited group of persons who have already been under observation, it is possible to identify the ownership of unlabelled curves. Hence the acidifying or alkalinizing effect of test substances cannot be judged solely by the observed urinary acidity after their administration; comparison with the fundamental or natural curve is necessary (and also, as will be mentioned, consideration of the urinary volume during the observation period).

Bridges and Mattice found themselves unable by dietary measures to make the urine continuously alkaline; but they found in their experiments that the food which most rapidly alkalinized the urine was cantaloup; no other food made the urine so strongly alkaline—pH 7·2 to 7·8. The effective action of urinary acidifiers according to Bridges and Mattice is conditioned by the amount of water simultaneously claiming excretion. The ratio of water excretion varies throughout the twenty-four hours, and the urine is relatively less acid or more alkaline during the period of rapid excretion; conversely, lack of water for excretion is generally associated with a highly acid urine. However, Bridges and Mattice found that when diuresis was produced by the administration of grape juice the urine remained relatively acid. Cranberry, plum and prune juices also tended to produce diuresis associated with highly acid urine, and they state that the easiest means of maintaining acid urine in normal persons is the substitution of cranberry juice for water as such in the diet.

A good deal is known about the capacity of the kidneys to excrete a more acid or more alkaline urine to help to

[1] *The American Journal of the Medical Sciences*, July, 1940.

offset any tendency to acidæmia or alkalæmia respectively; and the mechanism by which it does so is fairly well understood, but the exact stimuli to which the kidney responds have not been studied as thoroughly as the stimuli which activate the respiratory centre in its function of regulating acid-base equilibrium. The relationship of water balance to the acid-base equilibrium and the variable power of the kidney to concentrate different crystalloid substances according as they are excreted separately or together are still quite obscure. However, practical studies such as those of Bridges and Mattice contribute building stones to the castle of theory which is still in the air.

GENESIS OF HYDATIDIFORM MOLE.

WHILE many forms of congenital abnormality are familiar to us, it is perhaps not generally realized that there may be failure of development of the ovum in the very earliest stages. The product of conception may not even remotely resemble a normal embryo. Arthur T. Hertig and Henry W. Edmonds[1] describe the different varieties of pathological ova observed during a study of 1,027 spontaneously aborted ova and 74 hydatidiform moles. In one of the seven groups into which this material was classified, there was no derivative of the inner cell mass (that is, the portion of the fertilized egg destined to form the embryo); in another the embryonic mass consisted merely of a disorganized group of embryonic cells; in a third group the embryo, though normal in form, was extremely stunted. Artefacts were excluded as completely as possible. Of the total number of spontaneously aborted ova, 47·7% were pathological, and 60·9% of the pathological ova showed early hydatidiform degeneration of their chorionic villi. "Non-pathologic" ova constituted 52·6% of the total; 11·6% of such ova showed early hydatidiform degeneration of their villi. It seems, then, that in this series the incidence of mild hydatidiform degeneration was at least six times more common in pathological ova than in more normal ova. It has, of course, been known for over a century that mild hydatidiform degeneration is a fairly common occurrence in cases of spontaneous abortion, though the classical picture of hydatidiform mole is extremely rare. As so often happens in medicine, the recognition and study of the milder varieties may afford a clue to the mystery of the fully developed disease. The authors put forward the theory that a typical hydatidiform mole is derived from a pathological ovum in which the embryo was either absent or very defective from the beginning, and which, for reasons unknown, failed to abort at the usual time. In their view it constitutes a type of "missed abortion".

This theory is supported by a most interesting series of observations, illustrated by some excellent photographs. The first link in the chain of evidence is provided by the fact that the younger and more pathological the embryos, the higher is the incidence of hydatidiform degeneration. The typical pathological ovum showing this degeneration is one in which the ovum is either absent or very defective, and furthermore the hydatidiform degeneration seen begins in all probability at about the fifth week of pregnancy, the time when the fœtal circulation should begin to function. Hydatidiform villi are comparatively avascular; the authors point out that these villi resemble those found in the very early human ovum, before the fœtal circulation appears. In a way, the cause of hydatidiform degeneration seems to be linked up with the lack of villous vessels. One may imagine that after the death or maldevelopment of the embryo the villus goes on functioning normally, except that its imbibition or secretory products have nowhere else to go and thus accumulate in the villous stroma. It is conceivable that there is thus an accumulation of intravillous fluid which cannot be utilized because of the lack of a functioning fœtal circulation. A typical hydatidiform mole is therefore to be regarded as a true pathological ovum, without an embryo, with marked degeneration of its villi and frequent disruption of its chorion, so that the latter is not apparent at histological examination. And so these extraordinary masses of grape-like bodies, about which there has been speculation from the earliest times, seem to be finding their place in the endless jig-saw puzzle of our knowledge. But we do not yet know why they occur and why milder degrees are so common.

[1] *Archives of Pathology*, July, 1940.

ŒDEMA.

THE interplay of factors producing œdema in most conditions is complex and confusing. In many cases Starling's hypothesis adequately explains the situation, relating as it does the exchange of fluid between capillaries and tissues to a balance between the hydrostatic pressure in the capillaries and the osmotic pressure of the proteins in the plasma. It is true that a fall in plasma albumin causes a fall in plasma osmotic pressure and has been shown to produce experimental œdema, an excellent illustration of Starling's theory. However, clinical œdema cannot always be explained as simply as this. The œdema in acute nephritis usually is not associated with significant hypoproteinæmia, and only sometimes with a rise of intravascular pressure. Even though capillaries may be damaged, this is not sufficient to cause œdema while the osmotic and hydrostatic balance inside and outside the capillaries remains unchanged. Likewise in œdema regularly recurring during the menstrual cycle, and in certain endocrine diseases, such as Cushing's syndrome, the observed variations in tissue fluid cannot be explained on the basis of Starling's concept. In the nephrotic type of nephritis, in which a lowered level of the plasma proteins seems to explain the œdema so effectively, fluctuations in this œdema occur without corresponding fluctuations in the plasma proteins.

Such observations have led F. H. Robinson and L. E. Farr[1] to conclude that some other factor is active. Following the report by Gilman and Goodman that the urine of dehydrated rats contained an antidiuretic substance roughly proportional in activity to the severity of the dehydration, Robinson and Farr sought such an antidiuretic substance in the urine of patients suffering from œdema which could not be adequately explained on the basis of Starling's dictum. The method was to collect a 24-hour specimen of urine from the patient, concentrate it, free it from urea and salts by dialysis and inject a small measured amount of it into a large group of test rats which a short while before had been given saline solution by gavage to promote diuresis. The urinary output of the test group and a control group was then measured at intervals. The antidiuretic effect of the urine of patients with œdema was compared with that of normal individuals. In three patients with nephrotic œdema the urine showed an antidiuretic activity considerably in excess of normal. The œdema fluctuated over a period without significant changes in the plasma protein, but with considerable fluctuations in the antidiuretic titre of the urine, which, however, corresponded closely in time with the variations in œdema in only one patient. Two patients with Cushing's syndrome showed some correlation between œdema and antidiuretic activity of the urine. A single patient with menstrual œdema showed this relationship quite closely. Patients with acute hæmorrhagic nephritis with œdema showed a similar disappearance of the antidiuretic factor from the urine as the œdema disappeared. During administration of pitressin to their patients over a period of a week Robinson and Farr found a rapid fall within a few days of the high antidiuretic activity of the urine, a fall which was paralleled by a decrease in the œdema.

The site of elaboration of this factor is quite unknown, though certain evidence suggests that it may be the pituitary. Though inexplicable discrepancies did occur in these experiments, there seems little doubt that a glimpse has been had of a factor which may prove of considerable significance in the elucidation of the confused problem of œdema.

[1] *Annals of Internal Medicine*, July, 1940.

Abstracts from Medical Literature.

PATHOLOGY.

Congenital Infection of the Lungs, Middle Ears and Nasal Accessory Sinuses.

MIRIAM C. BENNER (*Archives of Pathology*, April, 1940) has studied the problem of infection of the respiratory system in the new-born, whether stillborn or liveborn, in regard to the mode of involvement and the ætiological factors. In a series of 70 cases the middle ears, sinuses and lungs have been examined. Inflammatory reactions were noted in 37% of the total number of fœtuses and infants examined, in 26% of the stillborn infants and in 46% of the infants born alive (all under two days of age at death). Aspiration of infected amniotic fluid is believed to be the cause of the pathological picture presented. It is suggested that infection of the fluid may occur after early rupture of the membranes, even though the ruptures were so slight as to escape notice. Study of sections treated with Gram's stain has given such variable findings that this method is considered unreliable for ascertaining the presence or absence of infection. A careful microscopic study of the structures involved represents the only reliable method of determining the presence or absence of an infective process. The author lays emphasis on the apparent parallelism between the inflammatory condition seen in the ears, sinuses and lungs, indicating a common source of infection.

Metaplasia of the Epithelium of the Prostatic Glands, Utricle and Urethra of the Fœtus and Newborn Infant.

ALTHOUGH a massive hypertrophy of the vaginal epithelium of the human fœtus during intrauterine life has been described some years ago, no similar detailed study of the male fœtus has been made in which the masculine organs corresponding to the vagina had been examined. Significant results were to be expected, as the vaginal changes are supposed to be due to the action of an œstrogenic hormone derived from the blood of the mother across the placenta. Henry Brody and Stanley Goldman (*Archives of Pathology*, April, 1940) therefore studied prostates from 62 fœtuses and infants, representing various stages of development from the tenth fœtal week to the sixth month of extrauterine life. Of these fœtuses and infants, 24 were still-born and varied in crown-heel length from 2·5 to 54·0 centimetres; 38 were liveborn and lived for periods of from ten minutes to six months. Of the latter group, nine were less than 45·0 centimetres in crown-heel length and might therefore be considered premature. They survived for from three hours to fourteen days. All fœtuses 23·0 centimetres in crown-heel length and larger, up to term, show squamous metaplasia of the epithelium of the prostate glands and ducts, prostatic utricle and prostatic urethra. The change is seen earliest in the utricle and latest in the prostatic urethra. In both the premature and the full-term infant there occurs several days after delivery a regression of the metaplastic changes, traces of which, however, can still be found at two months. The metaplastic change indicates the action of œstrogenic substances derived by the way of the umbilical circulation. The epithelial structures of the male acted on are those which, at least in part, are homologues of the vagina. In infants at term there occurs, in addition, focal hyperplasia of the prostatic epithelium, similar to that seen in the breast of the full-term infant, and possibly explained by similar factors.

Significance of Bronchial Obstruction in Pulmonary Tuberculosis in Children and its Relation to Epituberculosis.

ACCORDING to K. L. Terplan (*Archives of Pathology*, April, 1940), the close interdependence of occlusion of bronchial tubes by tuberculous granulation tissue and lobar or lobular atelectasis in the course of primary tuberculosis in children is demonstrated by the post-mortem observations in five cases. In two of these cases recent stages were found, with massive caseated endobronchial tuberculosis and complete atelectasis of the corresponding lobules. In two others there were calcified lesions within the lumens of third order bronchi, representing healed states of Ghon foci, and additional calcified and ossified endobronchial lesions in close relation to the primary foci. The corresponding lobules showed old collapse induration with funnel-like retraction of the pleural surface. In the fifth case the condition was clinically diagnosed as epituberculous pneumonia of the upper lobe of the right lung and was observed over several years, until shortly before death, by means of a series of skiagrams. *Post mortem*, extreme collapse induration was found, with unusual shrinkage of the entire upper lobe of the right lung, due to calcific occlusion of its main bronchus. In an instance of a typical epituberculous pneumonic shadow in a child three years of age, soft foreign particles were during bronchoscopic examination expectorated from the bronchus leading to the involved lung. These proved microscopically to be caseated lymph node structures containing tubercle bacilli. The child's subjective condition became normal within a few days. The massive shadow has decidedly cleared up in the course of three months. The anatomical findings do not support, in the author's opinion, the view that epituberculosis is true tuberculous pneumonia which heals by resolution. They confirm in part the view stressed by Rössle that atelectasis is the anatomic substrate of so-called epituberculous pneumonia. This atelectasis is caused by complete obturation of bronchial lumens by specific tuberculous structures.

Cancer of the Rectum.

C. E. DUKES (*The Journal of Pathology and Bacteriology*, May, 1940) publishes a paper dealing with the general characters of rectal cancer, its microscopic structure and manner of spread. It is based on the examination of 1,000 tumours removed by radical excision of the rectum. The main conclusions he draws from his analysis are as follows. Rectal cancer is commoner in men than in women. The average age of onset for women is earlier than for men. At the time of surgical treatment the disease is likely to have spread more extensively in young patients than in the middle-aged or elderly. All regions of the rectum may be affected approximately to the same extent, though probably the incidence decreases slightly on passing from the anus towards the pelvic colon. When surgically removed, most cancers have the form of oval ulcers two to three inches in diameter and extending over two or three quadrants of the rectum. When more than one malignant tumour is found, this may be due either to multiple primary carcinoma or to secondary tumours resulting from venous extension. Multiple primary carcinoma is especially common in cases of *polyposis intestini*. Histological grading is a useful method of subdividing adeno-carcinoma of the rectum, because it may give an indication of the extent of local spread. Tumours of high-grade malignancy are most frequent in young patients. A close relationship exists also between the histology of rectal cancer and the extent of lymphatic and venous spread. In about 15% of cases of rectal cancer regarded as operable the growth is found to be still restricted to the rectal wall (A cases). In about 35% the growth has spread by direct continuity into the perirectal fat, but has not yet caused lymphatic metastases (B cases). Lymphatic metastases are found in approximately 50% of all cases treated by radical excision (C cases). Evidence of extension of rectal cancer within the lumen of the hæmorrhoidal veins can be found in approximately 18% of all operation specimens. Lymphatic metastases are commoner in women than in men and are found more frequently in the young than in the elderly. Metastases rarely occur before the primary growth has spread by direct continuity into the perirectal fat. In the majority of cases exhibiting lymphatic spread only a few glands are affected. Evidence of lymphatic permeation is found in about 15% of all cases, these being mostly growths of high-grade malignancy.

Post-Mortem Glycolysis.

J. L. HAMILTON-PATERSON AND E. W. M. JOHNSON (*The Journal of Pathology and Bacteriology*, May, 1940) have investigated the possibility of determining by post-mortem blood sugar estimations whether a subject had died from diabetic coma or coma due to insulin overdosage. In the former condition hyperglycæmia would be present in death, in the latter hypoglycæmia. These investigations have brought out certain points which must be observed if hyperglycæmia or hypoglycæmia, present during life, is to be diagnosed after death. Blood from the left side of the heart must be used for investigation, as post-mortem hyperglycæmia may occur in the right side of the heart of subjects with a normal blood sugar content during life. The time after death at which the blood is collected must be noted. Although the authors had no cases of hypoglycæmia, they state that it seems probable that estimations must be made within two hours of death if one is to be reasonably sure that it did exist, as in normal cases complete glycolysis may be manifest after three and a half hours. Blood sugar values over 200 milligrammes per 100 millilitres in the left side of the heart and correspondingly high values in the cerebro-spinal fluid after death are constantly found in the bodies of patients who have had hyperglycæmia. In these cases no appreciable glycolysis has been noted in the blood,

even up to fifty-four hours after death. Glycolysis in the cerebro-spinal fluid does occur, but proceeds much more slowly than in normal subjects. In subjects with a normal blood sugar content glycolysis proceeds rapidly and is complete in from three and a half to seven hours. In-vitro experiments show no such difference between hyperglycæmic and normal blood. Hyperglycæmia may be due to causes other than diabetes, of which raised intracranial tension is the most likely. These, of course, must be excluded.

Myasthenia Gravis and Thymus Gland.

H. G. MILLER (*Archives of Pathology*, February, 1940) reports on five cases of *myasthenia gravis*, in two of which there was an encapsulated tumour of the thymus gland with remnants of normal thymus outside the capsule; in two there was a persistent thymus gland with well-marked peripheral hyperplasia in one case, and in one case the thymus was not identified. The author's review of the literature shows that only 87 such cases in which autopsy has been made have been reported on; in 41 of them the lesion of the thymus was found to be a prominent anatomical feature. He is not able to contribute much to the question why such thymic lesions are found only in a certain part of the cases and what role such conditions play in the genesis of disease. He suggests that patients with *myasthenia gravis* should be subjected to a careful X-ray investigation in an effort to diagnose thymic involvement, and that irradiation and surgical removal should be attempted more often in the treatment of this disease, which has so unfavourable a prognosis.

Anasarca Affecting the Myocardium.

H. GROSS (*The Journal of Laboratory and Clinical Medicine*, June, 1940) has found that in congestive heart failure the water content of the myocardium is increased owing to anasarca. He suggests that the beneficial effects of diuresis in congestive heart failure may be due in part to reduction of excessive myocardial water content improving cardiac contractility.

MORPHOLOGY.

Transmutation of Lumbo-Sacral Vertebræ.

M. YOUNG AND J. C. H. INCE (*The Journal of Anatomy*, April, 1940) discuss the results of X-ray examination of the pelvis of 510 young married women. They find that in 5% of cases the fifth lumbar vertebra had become "sacralized", while in only 1·6% of cases was there evidence of "lumbarization" of the first sacral vertebra. They consider that these observations, as far as they go, support Rosenberg's hypothesis that the vertebral column is undergoing a process of gradual shortening in man.

Development of the Patella.

R. WALMSLEY (*The Journal of Anatomy*, April, 1940) has studied the development of the human patella in a series of embryos ranging from the 20-millimetre stage to full term. He finds that the patella is foreshadowed in a pre-cartilaginous mass in the quadriceps opposite the lower end of the femur in the 20-millimetre embryo, and that the mass is cartilaginous by the 30-millimetre stage. In the 35- to 40-millimetre stage the patellar perichondrium fuses with the femoral perichondrium to form a joint plate. This breaks down, first on the medial side and then on the lateral side, to form a patello-femoral joint cavity at about the 70-millimetre stage. A suprapatellar pouch develops independently and produces a supracondylar patellar surface on the femur shortly after birth; the articular surface of the patella becomes adapted to this suprapatellar surface.

Male and Female Pelvis.

M. YOUNG AND J. C. H. INCE (*The Journal of Anatomy*, April, 1940) have conducted a detailed radiographic comparison of the male and female pelvis, based on the condition in 500 women and 50 men. They found that the size and proportion of the pelvic inlet and outlet, the size of the greater sciatic notch, and the suprapubic angle afford the best means of comparison. The degree of pelvic "funnelling" and the sacral curvature are of value, but less important. The variability of corresponding characters in the two sexes amounts to 10%. The average ilio-innominate index and posterior sagittal segment ratio in the two sexes do not differ appreciably. Pelvic characters vary independently, and there is a relatively low correlation between distinctive sexual characters.

The Pineal Organ.

W. E. LE GROS CLARK (*The Journal of Anatomy*, July, 1940) has investigated the nervous and vascular relations of the pineal organ in monkeys and in man. In the macaque the central core of neuropil contains numerous branching ganglion cells. Other nerve fibres form the perivascular plexus of the chorioidal arteries; in addition, a well-developed *nervus conarii* emerges from the apex of the pineal and runs to the wall of the straight sinus, where it ramifies in the subendothelial tissue. Fibres from the habenular and posterior commissures enter the organ, but all leave it again; the author considers them merely aberrant commissural fibres. In the human the *nervus conarii* arises as in the monkey, and has been traced to a large arachnoidal formation in the floor of the straight sinus close to the great cerebral vein. The author calls the formation the suprapineal body, and believes that it may provide a ball-valve to regulate the venous return from the great cerebral vein. The central core of the pineal organ contains a rich capillary plexus; the blood supply seems to come chiefly from the chorioidal arteries.

The Sympathetic and Sweat Secretion.

L. GUTTMANN (*The Journal of Anatomy*, July, 1940) has studied the effect of cervical ganglionectomy on the sweat secretion in man as a guide to the distribution of the sympathetic. Sweat was revealed colorimetrically by the use of iodine-starch or chinizarin. Removal of cervical sympathetic ganglia disturbed sweat secretion in limited cutaneous areas. Extirpation of the superior ganglion caused anhydrosis of the face and the neck down to the second or third cervical dermatome. Removal of both superior and middle ganglia extended the anhydrosis to the second rib and the proximal part of the arm. Removal of all three ganglia carries the anhydrosis to the whole of the forelimb except the medial part of the arm. The anhydrosis affects only the thermo-regulatory mechanism; injection of pilocarpine induced sweat secretion, but less than normal. Secretory hyperactivity, possibly compensatory for the loss in thermo-regulatory area, occurred in zones adjacent to the anhydrotic region.

The Mesencephalic Nucleus of the Trigeminal.

K. B. CORBIN (*The Journal of Comparative Neurology*, August, 1940) investigated the distribution of degenerated fibres after localized lesions in the mesencephalic nucleus of the trigeminal nerve in cats. He found degenerating medium to large myelinated fibres in the ethmoidal branch of the ophthalmic division, in the palatine and superior alveolar branches of the maxillary division, and in the pterygoid, masseteric and inferior alveolar branches of the mandibular division. He believes that the fibres to the palate, teeth and masticatory muscles exert a protective control over mastication, particularly in relation to the force of the bite. Corbin was unable to trace degenerated fibres to the sixth, seventh, ninth, tenth, eleventh and twelfth cranial nerves, and he doubts the existence of fibres to the third and fourth nerves. He considers it unlikely that the mesencephalic nucleus of the trigeminal nerve gives rise to pre-ganglionic autonomic fibres.

Blood Formation in the Human Embryo.

W. BLOOM AND G. W. BARTELMEZ (*The American Journal of Anatomy*, July, 1940) have studied hæmatopoiesis in young human ova from the thirteenth-day stage on. In the primitive streak stage and in the eighteen-somite embryo, apart from small foci in the belly stalk, blood formation is confined to the yolk sac. The early hæmatocytoblasts are usually of the large lymphocyte type, but cells resembling medium and small lymphocytes appear at the head-process stage. In the yolk sac hæmatocytoblasts give rise to erythrocytes on the one hand and to macrophages, giant cells, atypical megakaryocytes and myelocytes on the other. The primitive erythrocytes maintain an independent lineage; at first they are chiefly extravascular, but later they appear within the vessels of the mesenchyme and entoderm. Blood vessel primordia in the chorion plate, villi, yolk sac and belly stalk arise by direct transformation of mesenchymal cells.

Cutaneous Nerve Endings.

H. H. WOOLLARD, G. WEDDELL AND J. A. HARPMAN (*The Journal of Anatomy*, July, 1940) have correlated neuro-histological findings with observations on sensory distribution in the skin. They find that pressure, warmth, touch, cold and pain have a three-dimensional punctate distribution. Cutaneous pain is subserved only by fine medullated and non-medullated fibres bearing free endings. Pain can be elicited in the deeper part of the epidermis and the superficial layers of the dermis, and all varieties of pain are served by the same nerve apparatus. A similar nerve apparatus was found in the adventitia of blood vessels.

Special Articles on Psychiatry in General Practice.

(Contributed by request.)

XXI.

TREATMENT BY PROLONGED NARCOSIS.

SEDATIVES have always played a prominent part in the treatment of mental disorders; and whether the mind is disturbed with "thick-coming fancies" or weighed down by the clouds of despair, it is only reasonable that psychiatrists should have endeavoured to bring their patients under the influence of prolonged narcosis. In the last half century many experiments along these lines have been carried out, the most prominent being the use of "Somnifaine". The older psychiatrists, imbued with the same ideas, endeavoured to induce narcosis by opium, ether or chloroform or by massive doses of bromide, pushed to the state of intoxication. It can be easily imagined from the clumsiness of these older methods how dangerous this procedure could have been, and little progress in the use of continuous narcosis was made until 1920, when the well-known Swiss psychiatrist Klaesi introduced "Somnifaine". His method has undergone many modifications in the hands of those who have been impressed with the possibilities of prolonged narcosis. Other drugs from the barbituric acid group have been pressed into similar use in both Europe and America within recent years, and various claims have been advanced in support of the particular virtues of certain of these drugs. Max Mueller and others in Europe have favoured the use of liquid "Dial"; Loewenhart and Lorenz use "Amytal" in the United States of America, and Horsley has done considerable work with "Soneryl" in England.

"Somnifaine" Narcosis.

Prolonged narcosis as a form of treatment for mental disorder has been given the widest trial in one form or another by psychiatrists all over the world, and the lack of uniformity in the results achieved has depended more upon the type of disorder chosen for treatment than upon the narcotic used and the modifications which individual workers may have introduced to suit special requirements or to avoid possible dangers. Cases of schizophrenia presenting, as they have done, the largest and most perplexing problem to the psychiatrist, have naturally been given extensive trial under prolonged narcosis and the results have never in the aggregate been more than promising. It is well known that a certain percentage of schizophrenic patients undergo temporary or lasting remissions, and naturally such persons would be likely to be helped by a form of continuous narcosis. It is only since the introduction of the so-called shock therapy, a form of treatment far superior to continuous narcosis, that the latter has found its rightful place as an adjunct to the treatment of the "affective" psychosis.

In the earlier experiments with "Somnifaine" the aim was to bring about a fairly short period of almost complete narcosis. The drug was administered in such quantities as would produce sleep continuously for from five to eight days. The patient was artificially fed and the bowel and bladder were artificially emptied. This method, while effective, and even brilliantly so, in a number of cases, involved grave risks to life, so that at the present time the aim is to produce a much longer but less complete narcosis. The "Somnifaine" is administered much more gradually at the beginning, so that the patient becomes accustomed to sleep longer as time goes on. The whole course of treatment may last for twenty-eight days—longer or shorter periods may be undergone according to individual reactions and the judgement of the physician administering the treatment. The patient sleeps from sixteen to twenty hours a day, is able to be aroused for meals, which must be taken sitting up, and is able to get out of bed in order to empty the bladder and bowel. By the adoption of this method the mortality rate has fallen almost to nothing, and the results from a clinical point of view seem as good, if not better, than the older, shorter and more dangerous type of narcosis.

Indications and Contraindications for the Use of Prolonged Narcosis.

As this treatment is in no way specific for any type of mental disorder, its application should be left to the judgement of the doctor, whose experience will be of the greatest assistance as a guide. Generally speaking, continuous narcosis may be found to be advantageous in the milder affective psychoses, anxiety states, certain types of alcoholism and drug addiction. A small percentage of schizophrenic patients of the excited catatonic type may respond favourably. It is obvious that this form of treatment is of no avail in cases of paranoia, general paralysis, confusional or post-febrile conditions, nor in the arteriopathic or organic reaction types. Apart from such obvious contraindications as infectious diseases, active tuberculosis, advanced cardio-vascular and renal diseases, every case should be judged on its merits.

Effects of Prolonged Narcosis.

Although many theories have been advanced to explain the favourable results which prolonged narcosis helps to bring about, none has found universal acceptance. It may be that such chemical changes as cellular oxidation and cortical stimulation play a decisive part, or it may be merely that the narcosis, in producing cellular rest and amnesia, prostrates the patient to such an extent that with lowered general resistance he becomes accessible to the psychotherapeutic advances of the physician and those who are nursing him. Whatever may be the true explanation, it would seem that those patients in whom the "Somnifaine" brings about not only prolonged narcosis, but a state of toxicity, amounting in the later states to mild delirium, seem to achieve the best type of remission. It should be noted that "Somnifaine" shares the properties of the barbiturates generally and that certain patients react unfavourably to large or prolonged doses of it. One finds occasionally that instead of producing sleep "Somnifaine" produces an unfavourable restlessness and excitement which increase as the drug is administered. Other persons show an intolerance to the drug in the shape of an irritable rash. In either case the treatment has to be terminated. Jaundice is a rare complication, though mild vomiting is generally of little significance. It would appear that some patients have a decided idiosyncrasy to barbiturates, and deaths have been reported to follow quite ordinary doses of "Somnifaine".

As already emphasized, there is no standard technique for the administration of continuous narcosis. "Somnifaine" has played a leading part in this treatment, but many other methods have found favour with individual workers, and each one has developed a particular type of technique elastic enough to meet the varying needs of particular patients. The greatest variation exists in the amount of sleep aimed at, in the depth of the narcosis, in the administration of the narcotic and in the physician's attitude to undesirable complications. It would be impossible to set out in detail the various methods of using liquid "Dial", Cloetta's mixture, "Amytal" (intravenously) or "Soneryl"; and it is equally impossible to cover all the modifications that have been introduced, in many cases experimentally, by those who have given extensive trial to these methods. One must rest content with general principles and refer the reader to the now extensive literature covering this particular form of treatment. It should be added that, whether using "Somnifaine", "Amytal", liquid "Dial" or some other mixture with whatever modification, the physician has the same therapeutic aim. It is only Horsley who, in the use of "Soneryl", has developed an entirely different technique. Horsley endeavours to bring about a light narcosis with the patient relaxed and drowsy and while he is in this state carries out a form of psychoanalysis. This has been called "narcoanalysis", and in its originator's hands has yielded valuable results, but has not yet become a widely accepted form of treatment.

Summary and Conclusions.

Narcotherapy, by whatever method that may be adopted, is not a form of treatment upon which the general practitioner will care to embark, nor is he in the majority of cases qualified to undertake such treatment, for only those who have had considerable psychiatric experience and who are familiar with psychotic states should administer treatment which in unskilled hands is still fraught with danger.

A glance at the literature concerning prolonged narcosis shows the utmost diversity in the results obtained by this method and serves to emphasize not only its empirical nature, but its dependence on the enthusiasm of the physician and on his selection of patients. It is indeed difficult to assess the value of a form of treatment which is admittedly non-specific, but at the same time a valuable adjunct to psychotherapy. The actual recovery rate among patients suffering from affective psychosis is not a great deal higher than the normal spontaneous recovery rate; but the use of prolonged narcosis in this type of condition is undoubtedly of great value in shortening the period of the illness. Prolonged narcosis may be valuable in controlling excitement or alleviating depression in a variety of psychotic states. It may be of value in controlling the

restlessness which often accompanies early schizophrenic reactions, and is thought to be of greater value in any type of condition whose causation is more exogenous than endogenous or constitutional. It cannot be too strongly emphasized that the administration of continuous narcosis does little by itself to cure the disorder, but merely renders the patient able to benefit from the psychotherapeutic endeavours of the physician.

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British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on June 20, 1940, at the Royal North Shore Hospital of Sydney. The meeting took the form of a number of clinical demonstrations by the members of the honorary medical staff of the hospital. Part of this report appeared in the issue of November 16, 1940.

Subphrenic Abscess Associated with Leaking Duodenal Ulcer.

DR. R. A. MONEY showed a male patient, aged fifty-four years, who had been admitted to hospital on February 10, 1940, from the pulmonary clinic (Dr. B. White). He gave a history of pain in the right side of the chest and the back of three weeks' duration. He had been treated for duodenal ulcer for the past three months at another hospital and had had hæmatemeses.

On examination there was evidence of consolidation and pleural effusion at the base of the right lung. No abnormality was found in the abdomen. The leucocytes numbered 9,900 per cubic millimetre of blood. The temperature was normal. An X-ray examination revealed dulness in the lower half of the right side of the thorax suggestive of a large collection of encysted fluid.

On February 17, 1940, 70 ounces of clear yellowish fluid were withdrawn from the pleural cavity. The fluid contained a few lymphocytes, but no organisms. It was thought to be due to tuberculosis, and on the same day artificial pneumothorax was instituted. An X-ray examination of the liver region on February 22, 1940, revealed an area resembling either a hydatid cyst or a cavity in the lung. By this time the patient had begun to have remittent pyrexia, the temperature rising to 102° F. The leucocytes numbered 8,900 per cubic millimetre. A consultation was then held and the liver was found to be displaced downwards.

On February 29, 1940, transpleural and diaphragmatic suprahepatic drainage of a large subphrenic abscess was performed under a local anæsthetic, after pus had been obtained from the liver by aspiration. For some weeks afterwards the right pleural cavity contained fluid and there was consolidation of the base of the right lung; but both of these gradually disappeared. Later investigation of the alimentary tract during convalescence revealed pronounced hyperchlorhydria and an old deformity of the duodenal cap.

For two weeks the patient's condition was excellent and he had no pyrexia; but then remittent fever set in and the abscess reformed. The wound was reopened and the tube was reinserted. For some days he was extremely ill, with daily rigors and a temperature up to 104° F.; these were regarded as due to hepatitis. The number of leucocytes per cubic millimetre rose to 43,000. The condition finally settled down with the aid of sulphonamides and diathermy to the liver. The cavity gradually healed.

Lung Abscess.

Dr. Money also showed a male patient, aged forty years, who had been admitted to hospital on May 12, 1940, from the pulmonary clinic (Dr. B. White), with a history of cough present for years (much worse in the past six weeks) with copious sputum. He had had one or two small hæmoptyses. An X-ray examination of the lungs revealed infiltration of the right lung field towards the base; the appearance was suggestive of neoplasm. Several bronchoscopic examinations were performed and revealed a large amount of pus coming from the right lower bronchus. Radiologically the lesion at the base of the right lung progressed very slowly, no definite cavitation developing. On clinical and radiological grounds a lobectomy was planned and artificial pneumothorax was instituted in order to ascertain whether the lung was free. Very little deflation was obtained from this procedure.

On September 28, 1940, under nitrous oxide and oxygen anæsthesia, the right side of the thorax was opened; it was intended to perform lobectomy. The pleura of the right lower lobe, however, was densely adherent to the chest wall, and the lobe itself consisted almost entirely of a large abscess cavity containing foul pus and a large amount of necrotic lung tissue. This was sucked out. The pleural cavity was drained by a closed system and the abscess by a large tube drain, the pleura around the abscess being packed with gauze to promote further adhesions. After removal of the drainage tube the abscess cavity was painted at frequent intervals with Carney's fluid, and by December, 1939, it had almost completely closed in.

In the meantime a broncho-pleural fistula developed and communicated with the exterior through the wound. This eventually also healed, and on January 10, 1940, the patient was discharged to a convalescent home. The patient was readmitted to hospital on June 15 with a large abscess beneath the old scar. This was drained. The pus contained mixed organisms, *Streptococcus viridans* and fusiform bacilli predominating.

Fracture-Dislocation in the Lumbar Portion of the Spine.

Dr. Money finally showed a male patient, aged twenty-three years, who had been admitted to hospital on May 19, 1940, after a motor-car accident. He was unconscious for some time and unable to move his legs, and he had no sensation in them.

On examination he was found to have kyphosis of the upper lumbar region with partial anæsthesia and almost complete paralysis of the lower limbs and retention of urine. An X-ray examination revealed a compression fracture and slight backward displacement of the first lumbar vertebra.

Reduction of the fracture-dislocation was attempted under local anæsthesia. The spine was hyperextended by manipulation by Watson Jones's method. The body of the vertebra was opened out; but the displacement increased and dislocation of the first lumbar vertebra back on the twelfth thoracic vertebra became obvious. On May 20, 1940, open reduction under general anæsthesia was attempted. The upper articular processes of the first lumbar vertebra were found to be posterior to the lower articular processes of the twelfth thoracic vertebra. The first lumbar articular processes were removed and the vertebra was allowed to go back. Laminectomy was not performed. The patient was nursed in the supine position over a posterior plaster "boat". X-ray films revealed satisfactory reduction of the dislocation.

On May 26, 1940, lumbar puncture was performed. There was no response to the Queckenstedt test; this indicated the presence of a block to the cord, possibly due to blood clot. There was slight recovery of sensation and of movement in the lower limbs. Retention of urine was still present; the patient's bladder was catheterized regularly. On May 29, 1940, lumbar puncture was performed again. The response to the Queckenstedt test was a slow rise of pressure, but no corresponding fall. Orders were given that the patient was to be nursed in the prone position over pillows under the shoulders and pelvis. The wound opened when the stitches were removed, and was strapped.

On June 1, 1940, there was less backward displacement than at the time of the last X-ray examination. On June 6, 1940, lumbar puncture was performed for the third time; the Queckenstedt test produced an almost normal response. The muscles of the thigh and leg all responded to strong faradism. On June 10, 1940, incontinence of urine developed; an indwelling catheter was inserted. There was no further recovery of movement or sensation in the lower limbs. Dr. Money said that laminectomy was contemplated, to permit inspection of the *cauda equina* and *conus medullaris* in the region of the first lumbar vertebra. The prognosis was not good.

Pyometra and Degenerating Calcified Fibroid Tumour.

DR. STUART STUDDY discussed the clinical history of an unmarried female patient, aged sixty-eight years. Thirty years previously she had undergone an operation for pelvic tumour; the tumour was found to be inoperable, and double oophorectomy was performed. She had had amenorrhœa since then. When the patient was seen on September 14, 1939, she complained of the following: weakness, the loss of two stone in weight in three months, anorexia, night sweats and pyrexia, and abdominal swelling.

On examination a large, hard, irregular mass was palpable; it appeared fixed on the right side. *Per vaginam* several large fibroid growths were palpable; one was hard and calcified. A blood count revealed a mild degree of microcytic anæmia.

On September 21, 1939, an examination under anæsthesia was carried out. The cervix was dilated with difficulty and the pyometra was drained. Three weeks later total hysterec-

tomy was performed with difficulty. Adherent small bowel was encountered, which was soft and spongy, owing to sepsis. A fæcal fistula formed, which healed in six weeks. The patient recovered.

Compound Comminuted Fracture of the Patella Treated by Excision.

DR. A. R. HAMILTON showed a male patient, aged fifty years, who an October 6, 1939, had been involved in an accident; the resulting injuries were a wound extending into the knee joint, a comminuted fracture of the left patella with wide separation of the fragments, and an oblique longitudinal fracture of the lower third of the shaft of the femur extending into the knee joint. He also suffered from shock.

The wound was washed out with hydrogen peroxide, the edges were excised, the fragments of the patella were removed and the knee joint was washed out with hydrogen peroxide. The synovial layers of the joint cavity were united, the edges of the anterior fat pad of the patella were united, and the *ligamentum patellæ* and its expansion were sutured with catgut. The skin layers were united after a rubber glove drain had been inserted, and a dry dressing was applied. An aluminium back splint was bandaged on. Two days later the dressing was taken off and the drain was removed; there was some blood-stained discharge, but no pus. On October 14, 1939, a Thomas's bed splint was applied. On October 25, 1939, the wound in the knee joint was found to have healed by first intention. On November 19, 1939, a walking caliper was applied and the patient was discharged from hospital two days later. Dr. Hamilton said that the range of movement and the power of extension were good; he believed that the patient would most certainly have had a stiff knee if he had been treated in any other manner.

Unsound Ankylosis of the Left Knee and Dislocation of the Right Hip following Septic Arthritis of the Left Knee.

Dr. Hamilton then showed a male patient, aged twelve years. Up to six weeks prior to the meeting the patient had been in a country hospital for eleven months, suffering from septic arthritis of the left knee following a kick. When he left his bed it was found that the right hip was dislocated.

On the child's admission to the Royal North Shore Hospital a Thomas's bed splint was applied and continuous traction was exerted as a preliminary to an attempt being made to reduce the dislocation. Dr. Hamilton said that at a future date an attempt would be made by means of a two-way Thomas's splint to straighten the left knee. The case demonstrated how readily a hip joint could be spontaneously dislocated when the patient was very ill and when the original disorder was situated elsewhere in the body.

Osteomyelitis of the Left Femur Involving the Left Hip Joint; Renal Calculi as a Complication.

Dr. Hamilton's third patient was a female, aged nine years, who in November, 1939, had complained of pain in the left groin. She was admitted to Auburn Hospital and immobilized on a frame; later weight extension was applied. On March 1, 1940, the child was admitted to the Margaret Reid Home with the left leg in 25° of adduction and 15° of external rotation, and with half a inch of shortening of the limb. She was immobilized on a frame and extension was applied.

On May 28, 1940, the child was admitted to the Royal North Shore Hospital, suffering from pyelitis. An X-ray examination revealed multiple calculi in the right kidney, one of which the child passed on June 18, 1940. Dr. Hamilton said that his chief reason for showing the patient was to demonstrate the correct use of the Jones frame in the treatment of affections of the hip joint. The original deformities had been completely overcome by this appliance. He drew attention to the method of extension and to the bandaging of each leg to the outer bar to prevent knock-knee. Calculus formation was a frequent finding in cases of bone disease when recumbency was required, and usually disappeared when ambulation was resumed.

Squamous-Cell Carcinoma of the Palate and Alveolus Treated by Radon Implantation.

DR. H. J. HAM showed a male patient, aged sixty-five years. When first examined early in 1938 he gave the following history. He had had soreness of the throat for two years and a painful lump on the top of the mouth for two months. His teeth had been extracted about four months previously, and the lump had grown to about twice its original size since then. He had been wearing an upper denture for approximately ten years.

On examination on March 3, 1938, a fairly large epithelioma of the right side of the hard palate posteriorly was found; it extended onto the soft palate just over the mid-line, and also over the alveolus into the gingival sulcus. The growth was attached to the hard palate and measured three by three centimetres. No enlarged glands were palpable. Biopsy revealed squamous-cell carcinoma.

On April 5, 1938, fifteen radon gold seeds, each of 1·35 millicuries, were implanted in an area five centimetres in diameter. This was a permanent implant, giving a dose of 6,000 *r*. On May 12, 1938, the patient seemed to be free of malignant disease and no glands were involved. On June 30, 1938, there was a definite area of recurrence on the upper and inner aspect of the primary site, measuring 1·5 centimetres in diameter. On July 15, 1938, a second implantation of eight gold seeds was made, each of 1·1 millicuries. This was a permanent implant in an area of three square centimetres, with a dose of about 6,000 *r*. Since these implantations the tumour had been kept in check by contact X-ray therapy; only a small ulcer was now present.

Enlarged Glands Secondary to Epithelioma of the Lip Treated by Radium and Radon Implantation.

Dr. Ham next showed a male patient, aged fifty-nine years, who had had a dry area of skin on the right side of the lower lip, which he nicked with a razor. Two months later a lump formed on the lip; it was increasing in size. On April 14, 1938, he was given 1,400 *r* by superficial X-ray treatment. On July 21, 1938, the lip area was healed and there was no glandular enlargement.

On October 13, 1938, the patient was admitted to hospital with two secondary deposits in the glands of the neck; one submaxillary gland mass was two centimetres square, and one large gland mass in the lower half of the neck was four centimetres square. There was no reaction to the Wassermann test or the Kline flocculation test.

On October 21, 1938, implantation of radium and radon needles was carried out. The submaxillary gland received a total dose of 5,700 *r* over seven days and the lower gland mass received a total dose of 6,000 *r* over seven days. The enlargement of both glands gradually regressed, until on January 12, 1939, no glands were palpable, and on April 24, 1939, there was no X-ray evidence of secondary deposits in the lungs. Since that time there had been no sign of recurrence.

Proliferative Epithelioma of the Ear Treated by Radium Application.

Dr. Ham's next patient was a male, aged eighty-two years, who had been admitted to hospital on September 29, 1939, complaining of a growth with ulceration of the right ear, of three months' duration. The growth was increasing in size.

On examination an ulcer with scales and a pearly edge was found behind the ear, and there was a scaly ulcerative growth at the lower end of the ear. A third small ulcer was seen on the pinna. No glands were palpable.

On September 29, 1939, a base-plate gutta-percha mould with 16 radium needles, each containing one milligramme, was made and fitted over the ear so that the radium was in two planes with the lesion sandwiched between them. It was left in place for 163 hours; the maximum dose was 6,800 *r* and the minimum 5,200 *r*.

By November 30, 1939, the condition of the right ear was good; the lower part appeared clear, but the upper part was "uncertain". Two small rodent ulcers on the left ear were treated by superficial X-ray therapy. On February 1, 1940, the right ear was well. On April 18, 1940, the main lesion appeared well. There was a small lesion high up above the previous one behind the ear; it resembled a basal-celled carcinoma.

Squamous-Cell Carcinoma of the Cervix Treated by Radium and Deep X-Rays.

Dr. Ham next showed a married woman, aged thirty-two years, who had been admitted to hospital on November 24, 1938, with the following history. She had had a discharge *per vaginam* for two years; twenty months previously she had had diathermy to the cervix once a week for three treatments. The discharge persisted, and nine months prior to her admission to hospital she became pregnant, but miscarried at six months; the child died. Since then she had had slight bleeding *per vaginam*, which had increased during the last three weeks. The patient had one child, aged eight years.

On examination the patient was seen to be in good general condition. A vaginal examination revealed that the cervix was eaten away and replaced by a deep sloughing ulcer, which was bleeding. There was no induration. There were also on the vaginal wall four growths from inoculation.

The carcinoma was considered to be late Stage II. Histological examination of a section revealed squamous-cell carcinoma.

On November 25, 1938, two radium needles, one containing five milligrammes and one ten milligrammes, were placed in a cork and inserted in each fornix. They were left in position for three days; the total dose was 2,160 milligramme-hours. On November 28, 1938, five radium needles were placed in two corks and laid on the sloughing ulcer of the cervix and left for three days; three of the needles contained ten milligrammes of radium and two contained five milligrammes, and the total dose from these needles was 2,880 milligramme-hours. The total amount of irradiation given was 5,040 milligramme-hours.

On December 1, 1938, all the radium was removed. By December 23, 1938, there was much less vaginal discharge. The patient was discharged from hospital.

At Sydney Hospital deep X-ray therapy was given; 2,600 *r* were administered to each of four pelvic ports and the course was completed in March, 1939. The total dose was 10,400 *r*. On March 16, 1939, the skin was still reacting locally from the deep X-ray therapy and the cervix appeared almost normal. On May 18, 1939, a vaginal examination was made and great improvement was found. The vaginal vault and cervix were partly obscured by adhesional vaginitis. No lumps or masses were palpable in the vagina; there was a small soft area of ulceration on the cervix. On June 15, 1939, vaginal atresia was found, but the structures were soft; there was no infiltration and no post-irradiation telangiectasis was found. The patient had been seen at intervals of two months since then, but there was no sign of a recurrence.

Pemphigus.

DR. F. C. FLORANCE showed a female patient, aged forty-four years, who had been admitted to hospital on April 5, 1940, complaining of an irritable rash present for eight months. The rash began in the scalp as a pustule which spread till finally the scalp was covered with pustules; then red scaly areas developed on the trunk and limbs, which formed bullæ that broke easily, leaving raw painful areas.

On examination the patient was covered in a scaly rash with tense bullæ here and there all over the scalp, face, trunk and limbs. There was a sharp line of demarcation on the hands and feet. The rash was very irritable. The mucous surfaces were unaffected. The specific gravity of the urine was 1,020, and it gave an acid reaction. No abnormality was detected in the other systems.

Dr. Florance said that since the patient's admission to hospital her skin had become somewhat clearer and the bullæ were not so numerous, though they still formed and ruptured very quickly. The temperature had been "swinging", with daily rises from normal up to 100° F. or higher. It was normal for a week when the patient was having a coursé of "M & B 693". Since her admission to hospital the patient had contracted a *Bacillus coli communis* pyelitis. Local treatment consisted of saline baths at 110° F. twice a day for the first week, and then potassium permanganate baths (1 in 18,000). Soothing lotions were applied to raw areas, such as Pusey' liniment, calamine lotion and Unna's cream. General measures were the following: *Liquor Arsenicalis* was administered for a week; intravenous injections of one milligramme of "Germanin" were given weekly for four doses, followed by "M & B 693" for a week. At the time of the meeting the patient was having a course of quinine bihydrochloride therapy by mouth.

Blood counts revealed an eosinophilia ranging from 16% to 29%. Neither the Wassermann nor the Kline flocculation test produced a reaction. A considerable number of eosinophile cells were found in the fluid from the vesicles.

Sclerodermia.

Dr. Florance also showed a female patient, aged sixty-four years, who had reported to the out-patient department on January 8, 1940, complaining of "rheumatism" of the legs for six months. Examination revealed sclerodermia of the legs, forearms and hands.

Two doses of X rays, each of 100 *r*, were given at weekly intervals, on February 20, 1940, and February 27, 1940. Massage was applied to the legs and arms every second day. Ascorbic acid injections were given every week. The patient stated that she had had benefit from the treatment.

Paget's Disease of the Nipple in a Male.

DR. BASIL RILEY and DR. F. C. FLORANCE showed a male patient, aged seventy-five years, who in November, 1939, had experienced a sharp pain in the right breast on being bumped; but there was no abnormal appearance in the nipple or breast. Trauma caused increasing pain in the breast, until lately he had been unable to bear the pressure of his clothes on the nipple. In March, 1940, the nipple became red and swollen; an area about two inches in circumference became affected, and the patient noticed lumps beneath the nipple. At the time of the meeting he was experiencing occasional slight pain in the right *pectoralis major* muscle. He stated that there was an occasional serous discharge from the nipple. He had lost no weight and there was nothing of note in the family history.

Examination revealed that the right nipple was surrounded by an area two inches in circumference, which was deep red, swollen, indurated and very tender, with small lumps beneath. It was not attached to the deeper structures. There were two enlarged and firm glands in the right axilla.

A MEETING of the New South Wales Branch of the British Medical Association was held on July 18, 1940, at the Royal Hospital for Women, Paddington. The meeting took the form of a number of clinical demonstrations by members of the honorary staff of the hospital.

Diagnosis in Obstetrics.

PROFESSOR J. C. WINDEYER showed a series of patients to illustrate various points concerning diagnosis in obstetrics. The first patient was aged twenty-eight years and was in her second pregnancy. The first pregnancy, which was complicated by a *placenta prævia*, had been terminated by Cæsarean section one year and nine months previously. The due date for confinement was July 20, 1940. The patient had been sent down from the country ten days previously for advice and treatment. She had been well during the pregnancy.

On examination of the abdomen a large wide Cæsarean section scar was seen to be present, extending from an inch above the umbilicus down to the pubes; evidently the abdominal wound had broken down and suppurated. On palpation the anterior wall of the uterus seemed to be adherent to the back of the scar. The child was lying in the right occipito-lateral position; the anterior shoulder was felt three inches above the *symphysis pubis* and one and a half inches to the right of the mid-line. The head had partly descended into the brim of the pelvis and there was no disproportion. The uterus measured eleven and three-quarter inches from the top of the *symphysis pubis* to the fundus and nine and three-quarter inches transversely. The circumference of the abdomen was forty-two inches. The fœtus was estimated to be above average dimensions. The interspinous, intercristal and external conjugate diameters were normal. A vaginal examination revealed the cervix to be in normal position; the adhesion of the uterus to the abdominal wall had suggested the possibility of the cervix being drawn up out of the brim posteriorly. The sacro-sciatic ligaments were from two and a half to three finger-tips in length. Measurement of the outlet revealed a very narrow pubic arch; the transverse diameter of the outlet was about 7·25 centimetres and the posterior sagittal diameter was 8·0 centimetres. The sum of these two figures indicated a very contracted outlet. A lateral X-ray picture of the pelvis revealed a sacrum well curved forwards in its lower part.

Professor Windeyer said that whilst as a rule it was not necessary to perform Cæsarean section in a case in which the indication for the previous section had been *placenta prævia*, in this case several factors indicated the necessity for this operation: first, the possibility of a defective uterine scar; secondly, the large size of the child; and thirdly, the pronounced contraction of the outlet.

Professor Windeyer's second patient was aged forty-three years. She had had eight previous children; the smallest weighed ten and a half pounds at birth and all the others had weighed more than eleven pounds. Two had weighed more than twelve pounds and the heaviest had weighed fourteen pounds. The eldest child was aged nineteen years and the youngest two and a half years. The patient had had no miscarriages and all the labours had been normal. Her menstrual history suggested that the present confinement was some ten or twelve days overdue. Professor Windeyer said that with such a record the patient was the type of woman that Australia needed at the present juncture. Her eldest child, a son, was ready to defend his country, and her present pregnancy was due to terminate at any moment.

On examination the uterus was seen to be very large. It measured thirteen inches from the *symphysis pubis* to the fundus and ten and three-quarter inches from side to side. The circumference of the abdomen at the level of the umbilicus was forty-seven and a half inches. On palpation no excess of *liquor amnii* was detected and the contents of the uterus felt solid. All the findings suggested a very large fœtus. The fœtus was lying in the right occipito-

anterior position and the anterior shoulder was felt three and a half inches above the symphysis. The head had descended a little way into the brim of the pelvis and there was no disproportion between the head and the brim.

Professor Windeyer said that there seemed to be no chance of disproportion, but that as the patient's confinement was overdue and she was tired of waiting, an induction of labour by medical means would be attempted. He said that in the proposed induction only one dose of ten grains of quinine would be used, and it would be given at the same time as the *Oleum Ricini*.

Professor Windeyer's third patient was aged twenty-four years, and was in her first pregnancy. She was due to be confined on July 28, 1940. She had been in hospital for twelve days with a moderate degree of hypertension, the systolic blood pressure ranging from 140 to 170 millimetres of mercury. The urine at times contained albumin, but more often than not no albumin was present. She had had some swelling of the hands, feet and face; otherwise she had felt and looked well. She had been given a salt-free diet with a low protein content; aperients had been administered and the fluid intake had not been limited.

Professor Windeyer pointed out that the main point of interest was that the uterus was larger than normal. It measured twelve inches from the top of the symphysis to the fundus and ten and a half inches from side to side. The uterus was therefore increased in both of these diameters, but more so transversely. The circumference of the abdomen was thirty-nine inches. The wide uterus suggested a multiple pregnancy; but only one fœtus could be palpated, and that was lying in the right occipito-anterior position. There was an excess of *liquor amnii*. The first X-ray film taken suggested multiple pregnancy, owing to the fact that the fœtus had moved its position during the exposure of the film. Another X-ray film verified the palpatory findings that only one fœtus was present and that the pelvis was of the normal gynæcoid type. Professor Windeyer said that in this case, as the child seemed to be quite up to average term dimensions, a medical induction was indicated on account of the continued mild hypertensive toxæmia.

The last patient shown by Professor Windeyer was aged twenty-five years and was in her second pregnancy. The first had ended with a miscarriage at three months, three years earlier. Her menstrual history suggested that the present confinement had been due on July 10, 1940. The patient was stated to be a "bleeder", and a blood coagulation test was to be done and some relatives were to have their blood typed.

On examination of the abdomen it was noted that the rectus muscles were separated from symphysis to pubes. There seemed to be an adhesion of that part of the intestine to the side of the uterus or to the Fallopian tube at its entrance into the uterus, probably the result of salpingitis earlier in life. The uterus measured eleven inches from symphysis to fundus and nine inches transversely. It was, therefore, of normal dimensions. On palpation the head of the fœtus could be felt to the left of the fundus and the breech at the brim. The back could not be felt.

Professor Windeyer said that he had intended to utilize the patient to demonstrate the method of external version which he had described some years ago, but he had asked for an X-ray picture to be taken and it had only just come to hand; it revealed a very interesting and abnormal attitude of the fœtus. The radiologist's report stated that the fœtus was presenting by the breech, with the limbs anterior, the sacrum posterior and the head sharply extended on the body. Professor Windeyer was of the opinion that the hyperextension of the head indicated the possibility of iniencephalus, a type of monster in which the back of the head was attached to the back of the fœtus. If this were so, he considered that it would be better to allow the breech presentation to remain. He therefore recommended that further X-ray pictures be taken before it was decided to alter the pelvic presentation into a cephalic one. In any case, even if the fœtus was not a monster, a version would result only in the changing of one abnormal presentation into another.

Puerperal and Post-Abortional Sepsis.

DR. GORDON LOWE showed a series of patients illustrating various types of puerperal and post-abortional sepsis. Examples of infection by the hæmolytic streptococcus, anaerobic streptococcus, *Bacillus coli communis*, *Bacillus welchii* and *Staphylococcus aureus* were exhibited, and the differences in the patients' temperature charts, treatment and prognosis were discussed. Dr. Lowe said that all patients suffering from incomplete abortion admitted to the isolation ward were immediately subjected to vaginal swabbing in an endeavour to isolate the causal organism. Pending the pathologist's report, the patient might be given one of the sulphanilamide series of drugs; but unless the *Streptococcus hæmolyticus* was isolated this form of treatment might not be continued. Mention was made of the intolerance of some patients to this drug given by mouth or parenterally. Blood transfusion was given in cases in which the blood picture indicated deterioration in red cells or hæmoglobin value. "M & B 693" in large doses had been given in *Bacillus welchii* infection, as had also gas gangrene antiserum in repeated doses of 40,000 to 60,000 units; but one had to keep an open mind as to their value. Some patients recovered without the administration of any drug or serum. One had to be very guarded in the matter of intrauterine instrumentation and even in the making of a simple vaginal examination in these cases, as either procedure might alter the whole course of the illness by causing the temperature to rise further or even by leading to the death of the patient. As a general statement, if one was in doubt as to whether to empty the uterus or not, it would be better not to do so. Long vaginal douches with at least four quarts of warm water were helpful and kept the parts more comfortable. Infection of the blood stream with *Staphylococcus aureus* was almost always fatal, and no treatment seemed to avail. In fact, except in infections by the *Streptococcus hæmolyticus*, in which the mortality rate had been enormously reduced since the introduction of sulphanilamide, expert nursing was still the essence of treatment, and with that alone many patients recovered. In this department of the hospital, as in the other departments, the sister in charge was very experienced and her skill was certainly instrumental in saving many an unfortunate woman. It was found that if a patient would take plenty of nourishment of any and every sort, she would recover. Dr. Lowe had seen patients with temperatures of 104° F. and upwards eating steak and kidney pudding and corned beef and carrots; they almost always recovered. If the patient found difficulty in taking food, everything given should be easily taken and readily assimilable; such foods were egg flips and orange or lemon juice with glucose in saline solution. Once nourishment was refused, the worst might be anticipated. Plenty of fresh air and sunlight were also essential in the treatment of these patients.

Demonstration of Post-Natal Physical Therapy.

MISS NANCY LOVE and MISS RICHARDS showed a series of six patients to demonstrate the uses of post-natal physical therapy. The patients were at various stages of the puerperium, from the third day after delivery onwards. It was explained that normal patients began treatment on the second day. Patients who had had Cæsarean section or sutures or had sustained complete tears also did selected exercises. The system was introduced into the daily routine of the hospital in January, 1939; it had been modelled on a scheme in use at Saint Thomas's Hospital, London. The exercises had the following aims: to strengthen the muscles before the erect posture was resumed and to reeducate them for normal posture; to aid the process of involution and normal bodily function; to diminish the possibility of thrombosis; and to guard against such after-effects of child-bearing as low backache, visceroptosis, prolapse and frequency of micturition.

Radiological Exhibit.

DR. ERIC W. FRECKER showed a series of films designed to illustrate the uses of the X-ray examination in the practice of obstetrics and gynæcology. Dr. Frecker pointed out that the pregnant woman was subject to the same diseases as the non-pregnant woman, and that some of these diseases had a peculiar and increased significance when associated with pregnancy. To illustrate this contention he showed a series of X-ray films revealing tuberculosis, pyelitis of pregnancy and heart disease, all in pregnant patients. This series emphasized the necessity of using this most modern method in all its aspects during the prenatal period. In this way it had been the practice at the hospital to hold a small weekly clinic conducted by the consulting physician, resident staff and radiologist, solely for pregnant patients suffering from heart lesions. Some interesting material had been gathered in this work.

Of more direct obstetrical interest, Dr. Frecker showed films depicting the value of X-ray methods in the discovery of abnormalities of the fœtus. No other method so quickly or so certainly indicated the presentation, the lie and the size of the fœtus with so little disturbance to the patient. The presence of a frank breech presentation with extended legs, of multiple pregnancy, of a dead fœtus, of anencephaly, of hydrocephaly and of various unusual positions *in utero* were all shown by the X-ray examination.

Dr. Frecker said that the phenomenon of child-birth was obviously in large part a mechanical one, concerning the

passage of a fœtus through the maternal passages, and therefore there was an increasing interest in the subject of pelvic and fœtal measurement by means of X rays. The methods of Thom and of Ball were explained and the apparatus was demonstrated. Thom's method gave a perfect outline and correct dimensions of the pelvic inlet, but no information concerning the fœtus. Dr. Frecker stressed the point that every *primipara* should be measured by this simple method in the early stages of pregnancy, so that there would be ample time to formulate a plan of campaign when any abnormality was present. Thom's method gave no information concerning the pelvic outlet, and the more elaborate method of pelvicephalometry, as designed by Ball, should be used towards term in all cases in which disproportion or abnormality seemed likely from the clinical examination.

Dr. Frecker said that the correctness of the pelvic measurements obtained in this way was beyond dispute; but the measurements of the fœtal head were not quite so trustworthy, though still very valuable. The value of the X-ray examination and of X-ray measurement in particular was not sufficiently appreciated by most obstetricians. These methods elucidated most of the static problems of obstetrics, but not the dynamic ones. In other words, X-ray information related to the position, relations and measurements of the "passages" and of the "passenger", but told nothing of the "powers". Hence the radiologist was unable to predict the course of labour from his own examination, but was still able to give to the obstetrician valuable data which, with the clinical findings, formed the best possible foundation for the conduct of labour. With increasing use and experience the method would become more efficient and finally as essential as it had gradually become for the examination of the lungs.

DR. BRUCE HITMANN demonstrated the technique of injecting lipiodol into the uterus and Fallopian tubes.

The principles of interpretation in hystero-salpingography were explained, and a series of films was shown illustrating the various appearances resulting from patent and stenosed Fallopian tubes.

Toxæmias of Pregnancy.

DR. H. A. RIDLER showed several patients suffering from toxæmia in the later months of pregnancy. Various practical points were demonstrated. There was a rise in blood pressure before the appearance of albumin in the urine, and this had been noted in the antenatal department. After two of these patients had been confined the amount of albumin rapidly decreased; finally albumin disappeared from the urine and the blood pressure came down to normal limits.

One patient, a *primipara*, had been admitted to hospital with preeclampsia at the thirty-sixth week of pregnancy. At the end of twenty-four hours she went into labour, which lasted six hours; and she was delivered of a five-pound baby who had progressed favourably. Dr. Ridler said that this clinical history illustrated the fact that on occasions Nature came to the patient's rescue, started labour and finished it before the medical attendant could make up his mind whether to induce labour or not. On most occasions the opposite occurred in albuminuria or preeclampsia; the induction of labour took many days and resulted in a long tedious labour in spite of the baby's being small and premature.

In this series of cases several methods of induction had been used and the advantages and disadvantages of each were discussed. One patient had been admitted to hospital with mild albuminuria at the thirty-fourth week of pregnancy. After a few days' treatment the albuminuria disappeared, and in ten days she was allowed to go out of hospital; at the thirty-eighth week she was readmitted with mild albuminuria and raised blood pressure. Exactly the same had happened in her previous pregnancy four years earlier. Dr. Ridler was not in favour of allowing these patients to go out of hospital till after delivery. In one case labour was induced at the thirty-first week and the patient was delivered of a baby weighing two pounds ten ounces, which was progressing favourably. Dr. Ridler pointed out that in any well-equipped department these small and immature infants usually survived and did well.

VICTORIAN BRANCH NEWS.

THE following recent judgement of the Workers' Compensation Board of Victoria in the case Raven *versus* Buchanan and Brock Proprietary Limited (2179/40) is published at the request of the Victorian Branch of the British Medical Association for the information of members.

Raven v. Buchanan and Brock Proprietary Limited.

This is an application for compensation for injury by accident arising out of and in the course of the worker's employment. Respondent limited its defence to the plea that applicant had not been incapacitated within the meaning of the Acts.

Applicant was employed by respondent as a boilermaker's assistant. On the 28th of June last he was engaged in striking plates with a 14-pound hammer. This operation calls for strenuous exertion. He had, on his right side, a congenital hernial sac. The conspicuous effort which he was obliged to put forth on that day caused the sac to fill. There had already been some contents in it for some months. He felt the lump suddenly form, suffered acute pain and broke down. He was removed to hospital, where the hernia was reduced. He was then sent home and about a month later, acting upon his doctor's advice, he underwent a surgical operation by which the sac was removed. During his month of waiting he did not work, and spent a good deal of the time resting. He wore during that time an ill-fitting truss, which was useless and which probably caused the pain which he suffered during that time.

It did not appear in evidence what advice he had been given. But it may be assumed, by inference drawn from his surgeon's evidence, that he was merely told that he ought to undergo the operation. His surgeon, Mr. Catchlove, said, in giving evidence, "A hernia which causes acute pain and semi-collapse of patient should be operated upon immediately. I examined him. He was wearing a truss. He did not exhibit much pain. His hernia was operable. It did not require immediate operation. There were no indications of impending strangulation. There was nothing to suggest the need of immediate operation. Had he worn a proper truss he could have gone about his ordinary occasions whilst awaiting operation. This he was doing. He ought not to have gone about his ordinary work. But he could have done so, although I would not have advised it. He was not incapacitated when I saw him, from doing work, but was incapacitated from swinging a heavy hammer . . . A well-fitting truss would have reduced the risk, although the danger of the sac becoming filled would, even so, have been present . . . I advised that the operation be undergone, because he might, otherwise, have suffered a further filling."

Mr. Leo Doyle, surgeon, called on behalf of applicant, stated that he had seen the worker soon after his accident, described the condition which he saw, and stated that it would have been most unwise of the worker to have continued heavy work without having been operated upon; that a well-fitting truss would have kept the contents from coming into the sac; that there was nothing to prevent the worker from working "if the sac had been emptied and stopped up"; that the worker would not have been fit for heavy work; that had he worn a truss there would have been nothing to prevent his undertaking heavy work except the probability of the sac again becoming filled as a result of strenuous effort; and that there was no incapacity beyond such probability.

Dr. John Kennedy, who was called on behalf of the respondent, was in close agreement with the views expressed by the applicant's medical advisers.

The Board accepts the medical evidence. The question to be determined appears, in the light of that evidence, to present no great difficulty. Its main effect, for the purpose of the only question, appears to be that it was necessary that the operation should be performed if the applicant's future comfort was to be ensured by the elimination of the possibility of a recurrence of the painful experience which he had suffered; that such a recurrence would have been probable only in the event of his undertaking heavy work; that it would have been merely possible if he engaged in lighter work involving the use of no extraordinary physical effort; and that in any case it could not be said that he was incapacitated from undertaking such lighter work as long as he wore a well-fitting truss. A worker is not to be permitted to refuse unreasonably to undergo medical treatment or to use such appliances as may assist in his physical rehabilitation or the amelioration of his physical disability. That the worker in this case was in fact willing to wear a truss is shown by the fact that he did wear one which, unfortunately, was unsuitable and useless. His choice of the truss was quite unreasonable, he having accepted it at haphazard from his father.

It appears to the Board that this application was pressed to determination because of the fact that during its preparation and investigation there did not emerge clearly the distinction between the question whether an operation was necessary to cure an existing incapacity for work and the question whether the operation was necessary only to prevent a repetition of an occurrence which, while it did not result in incapacity, was a cause of physical pain to

its victim. It is important in all such cases that the applicant's adviser, knowing that the onus of proof rests upon his client, should, by testing the evidence available, satisfy himself that the evidence does really lead to the conclusion to which, *prima facie*, it appears to lead.

On such parts of the evidence as it accepts, the Board is satisfied that the incapacity was of less than the statutory three days' duration.

It follows that the application fails.

The Board expresses its appreciation of the assistance given it by Mr. Hill, counsel for applicant, and Mr. Phillips, counsel for respondent.

Applicant to pay respondent's costs. Certify appropriate items under Rule 43. Qualifying fee for Dr. Kennedy to be fixed by Registrar. Order payment out to respondent's solicitors of money paid to custody of Board.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 223, of November 7, 1940.

PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

Appointment.—Mervyn Clive Townsend is appointed Surgeon Lieutenant (D), for temporary service, dated 14th October, 1940.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Appointments.—John Anthony James is appointed Surgeon Lieutenant, dated 31st October, 1940; Surgeon Lieutenant John Patrick Millar is appointed District Naval Medical Officer, Tasmania, dated 9th September, 1940.

Termination of Appointments.—The appointment of Thomas Giblin as Surgeon Lieutenant-Commander is terminated, to date 29th June, 1940, and his appointment as District Naval Medical Officer, Tasmania, is terminated, to date 8th September, 1940.

AUSTRALIAN IMPERIAL FORCE.

Australian Army Medical Corps.

To be Major—Captain (Temporary Major) P. F. Murphy, Australian Army Medical Corps, 2nd Military District, 1st October, 1940. *To be Captain*—Captain A. T. Harbison, Australian Army Medical Corps, 4th Military District, 1st October, 1940.

To be Captain.—Captain (Temporary Major) G. N. Morris, Australian Army Medical Corps, 3rd Military District, 1st October, 1940.

To be Major—Captain J. E. Sewell with regimental seniority next after Major T. G. Swinburne, 26th August, 1940.

AUSTRALIAN MILITARY FORCES.

NORTHERN COMMAND.

First Military District.

Australian Army Medical Corps.

Honorary Captain J. L. Selwood is appointed from the Reserve of Officers (A.A.M.C.) and to be Captain (provisionally), 2nd June, 1940, and to be Major (temporarily), 3rd June, 1940.

Australian Army Medical Corps Reserve.

To be Honorary Captain—Milford Graham Wilson, 27th September, 1940. The notification appearing in Executive Minute, No. 187/1940, promulgated in *Commonwealth Gazette*, No. 199, of 26th September, 1940, respecting the appointment of Mervyn Powell as an Honorary Captain, is withdrawn.

EASTERN COMMAND.

Second Military District.

Australian Army Medical Corps.

To be Captain (provisionally)—Ronald George Lyre, 6th September, 1940. The undermentioned officers are brought on the authorized establishment from the dates stated: Captains (provisionally) I. W. MacNaught, H. R. T. Hodgkinson, E. H. Hipsley and P. O. Armytage, 1st September, 1940; Captains (provisionally) G. D. Cumming, J. M. Oldham, L. P. Hiatt, M. A. Napthali, M. R. Lee, S. G. Bradfield, K. F. Potts, M. S. Schreiber, R. Mackey, J. P. Findlay, R. H. Kaines, R. E. S. Charlton, J. F. S. McKee, and A. A. Callen, 30th September, 1940.

Australian Army Medical Corps Reserve.

Captain H. L. Deck is placed upon the Retired List with permission to retain his rank and wear the prescribed uniform. The resignation of Captain W. D. Cunningham of his commission is accepted, 10th September, 1940. Honorary Captain J. S. Campbell is retired.

SOUTHERN COMMAND.

Third Military District.

Australian Army Medical Corps.

To be Majors (temporarily)—Captains B. H. McColl, G. G. B. Boileau, R. G. Penington, C. C. Klug, T. P. Crankshaw, J. V. Ashburner, H. I. Gibb and M. M. Rosefield, 9th October, 1940. Honorary Captains B. R. Woods and H. C. Carter are appointed from the Reserve of Officers (A.A.M.C.), and to be Captains (provisionally), 21st August, 1940, and 1st October, 1940, respectively. Colonel C. W. Adey, E.D., relinquishes the appointment of Assistant Director of Medical Services, 2nd Cavalry Division, 16th October, 1940, and is transferred to the Unattached List, 17th October, 1940.

Australian Army Medical Corps Reserve.

To be Honorary Captains—Charles Farrar Hutton, John McCarthy Joseph Seward, James John Murray, Lindsay Charles Newton, Douglas James Levens, Alan Richard Turner Greenwood, Walter Batchelder, Frank Bartley, Kenneth Thomas Adamson, Menzies Scott Bartlett, Jack Alexander Isaacs, William Joseph Kinsella Treleaven and William Ashworth Baird, 23rd September, 1940.

Fourth Military District.

Australian Army Medical Corps.

Captain (provisionally) W. A. Russell is granted the temporary rank of Major whilst carrying out duty with the Darwin Overland Maintenance Force, 29th August, 1940.

Australian Army Medical Corps Reserve.

To be Honorary Captain—John Leonard Eustace, 1st July, 1940.

WESTERN COMMAND.

Fifth Military District.

Australian Army Medical Corps.

To be Captain (provisionally)—James Boulder Lyon Johnston, 1st October, 1940.

Australian Army Medical Corps Reserve.

To be Honorary Captains—Cyril Marcus Clifton Coleman, Reginald Vernon Johnson, Ernest William Jones, Kenneth Cameron Edward Rout and George Ronald Douglas Sanders, 20th September, 1940. Honorary Lieutenant G. D. Johns is retired.

LECTURES IN ADELAIDE TO ARMY MEDICAL OFFICERS.

A COURSE of lectures on "Supplies and Messing in the Army" will be held at the Institute of Medical and Veterinary Science, Frome Road, Adelaide, on November 30 and December 1, 1940. The subjects for discussion include general methods of supply, recent developments in army cooking, meat inspection and medical equipment. Doctors taking up army duty find their work considerably lightened if they have a good general knowledge of military procedure beyond the purely professional field. The lectures will be given by experts in the various departments and there will be suitable demonstrations. The course is open to all medical practitioners. It is desired that those proposing to attend will forward their names to D.D.M.S., Keswick Barracks.

Correspondence.

TRIGEMINAL NEURALGIA.

SIR: Typical, regular cases of trigeminal neuralgia are curable by operation, of that I am thoroughly convinced. But once again I want to warn any surgeon who is

tempted to perform a major operation on an irregular or atypical form.

I was first operated on about twelve years ago for supra-orbital neuralgia, and supraorbital neuralgia only. I can honestly state that I have never been one waking moment out of pain ever since. It has only been a question of degree; always bad, but at times much worse than others.

As an extra warning I'd like to describe the symptoms as they are at present. You must imagine an imp of Satan armed with an electric drill in either hand. He gets to work with one in the supraorbital notch and the other somewhere deep in the malar bone. As he becomes engrossed in his work he becomes more and more vigorous in his attack. By the way, he has purposely left at his home in Hades his anæsthetic solution and syringe. He is assisted by an electrician who has coarse, medium and fine wires attached to one's lips, eyelids, side of nose, teeth and side of tongue. By pressing a button he can send a painful shock through any of these places. Sometimes, just for pure devilment and because he likes to hear bad language, he presses all the buttons at once. All the while this is happening one's face is clamped up against a fire, just hot enough for toasting bread.

I think what I have written should be warning enough. I would like to hear through your columns or privately of any treatment, drug or otherwise, that is at all likely to give some relief. I've tried vitamins, orally and by intramuscular injection, injections of acetylcholine; also some years ago deep X-ray therapy, but nothing, up to date, has been of the least benefit.

Yours, etc.,

A. LYONS.

Eaglehawk,
Victoria,
November 5, 1940.

PROBLEMS RELATING TO THE SUPPLY OF MEDICAL EQUIPMENT.

SIR: Sir Alan Newton's address identifies Australia's shortage of medical equipment which must be replenished by spending foreign funds that are being conserved to equip, say, R.A.F.

Sir Alan Newton also says "It is to be hoped that our successors will profit from the knowledge that if we had supported local manufacturers to a greater degree, we should not be in our present predicament . . ."

Your readers will be pleased to learn that my company has in stock sufficient tubes, minor parts and raw materials (for fitment to Australian-made X-ray apparatus) to meet the present rates of defence and civilian demand for three years.

Yours, etc.,

J. P. TRAINOR,
Chairman of Directors,
Watson Victor Limited.

Sydney,
November 11, 1940.

SIR: Sir Alan Newton's address (reported in THE MEDICAL JOURNAL OF AUSTRALIA of November 9) on problems relating to the supply of medical equipment is an admirable appeal to the profession to practise economy.

It would seem that a great saving could be effected were the larger and even smaller private hospitals to adopt the policy of supplying equipment of a routine nature used in surgery. The present system of each consultant surgeon owning a valuable stock of everyday instruments and making individual replacements when necessary is surely uneconomic and wasteful. One would be safe in saying that the material, such as needles, knives, catgut, artery forceps *et cetera*, privately owned and occasionally used by consultants, would if pooled and distributed at private hospitals, suffice with little need for replacements for a very long time.

The benefits appear obvious whether looked at from the point of view of national economy in the matter of foreign credits or the everyday one of saving time to the surgeon who packs and unpacks his tools of trade many times in a year. It would, too, lead to a saving of the time of the various theatre staffs to have a proportion of the instruments always in the hospital.

Yours, etc.,

KEITH KIRKLAND.

135, Macquarie Street,
Sydney,
November 12, 1940.

THE PUBLIC AND NUTRITION.

SIR: Dr. H. R. R. Grieve, in his reply (THE MEDICAL JOURNAL OF AUSTRALIA, November 9, 1940) to my criticism of the British Medical Association Spokesman's talk on nutrition, has in an important respect misunderstood me. He says: "We cannot agree that we should, as Dr. Dark wishes, advocate this or that political policy." There is no sentence in my letter which could possibly convey this meaning, and nothing could be farther from my wishes than to drag the British Medical Association into party politics.

My view may be stated in six points, as follows:

1. To the medical profession belongs the responsibility for safeguarding and improving the public health.
2. To the politician belongs the responsibility for administering the affairs of the community.
3. It is the duty of the medical profession to educate the public in matters affecting its health.
4. The Government is—or should be, if democracy means anything—the agent and representative of the people.
5. If the affairs of the community are being administered in such a way that the public health suffers, it is the duty of the medical profession in its educational talks to the people to say (as any doctor in private practice would say to a patient in his consulting room): "You are not getting a proper diet." "You are living (or working) in conditions injurious to your health." And so on.
6. It is then up to the people to demand action on the part of their Government.

My complaint then is that in the talk on nutrition a good job was only half done. To complete it, it was necessary to state that thousands of people in New South Wales are living far below that desirable standard, and to point out what would be the inevitable result to the State in unfitness, disease and death. That is keeping entirely within the bounds of preventive medicine and does not trespass at all upon party politics.

If the Committee on Medical Sociology and Research lives up to its great title it will make medicine a really honoured profession in this State; if not, it will be in danger of becoming a mere timid purveyor of medical platitudes—"as sounding brass or a tinkling cymbal".

Yours, etc.,

E. P. DARK.

Katoomba,
New South Wales,
November 12, 1940.

Notice.

THE next clinico-pathological conference arranged by the Post-Graduate Directors of Medicine, Surgery and Pathology will be held at the Prince Henry Hospital, Little Bay, New South Wales, on Monday, November 25, 1940, at 4.30 o'clock p.m. The subjects will be: Cases for diagnosis and discussion: (*a*) a case of pyrexia of unknown origin, (*b*) a case of hepatomegaly. A cordial invitation to be present is extended to all medical practitioners.

Obituary.

GEORGE ROEBUCK WOODHEAD.

WE regret to announce the death of Dr. George Roebuck Woodhead, which occurred on November 10, 1940, at Maryborough, Queensland.

Australian Medical Board Proceedings.

TASMANIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Blackwood, Kathleen Katrine, M.B., B.S., 1937 (Univ. Melbourne), Royal Hobart Hospital, Hobart.
Ham, Mary Atholl Stuart, M.B., B.S., 1924 (Univ. Melbourne), Beaconsfield.

Nominations and Elections.

THE undermentioned has been elected a member of the New South Wales Branch of the British Medical Association:

Burfitt, Thomas Owen, M.B., 1938 (Univ. Sydney), 110, Elizabeth Bay Road, Elizabeth Bay.

Medical Appointments.

Dr. L. Sprod has been appointed Honorary Assistant Anæsthetist at the Royal Adelaide Hospital, Adelaide, South Australia.

* * *

Dr. R. T. Allan has been appointed a Member of the Indeterminate Sentences Board of Victoria, in accordance with the provisions of Section 531 of the *Crimes Act*, 1928, of Victoria.

* * *

Dr. W. J. Close has been appointed a Temporary Honorary Surgeon at the Royal Adelaide Hospital, Adelaide, South Australia.

Books Received.

"Tuberculosis and Social Conditions in England, with Special Reference to Young Adults: A Statistical Study", by P. D'Arcy Hart and G. P. Wright; 1939. London: National Association for the Prevention of Tuberculosis. Royal 8vo, pp. 165, with illustrations. Price: 3s. net.

"A Text-Book of Bacteriology", by R. W. Fairbrother, D.Sc., M.D., M.R.C.P.; Third Edition; 1940. London: William Heinemann (Medical Books) Limited. Medium 8vo, pp. 461, with illustrations. Price: 17s. 6d. net.

"Diseases of the Nervous System Described for Practitioners and Students", by F. M. R. Walshe, O.B.E., M.D., D.Sc., F.R.C.P.; 1940. Edinburgh: E. and S. Livingstone. Demy 8vo, pp. 301. Price: 12s. 6d. net.

"Ideal Marriage: Its Physiology and Technique", by Th. H. Van de Velde, M.D., with an introduction by J. J. Abraham, C.B.E., D.S.O., M.A., M.D., F.R.C.S.; 1940. London: William Heinemann (Medical Books) Limited. Demy 8vo, pp. 359, with illustrations. Price: 12s. 6d. net.

"Modern Medical Therapy in General Practice", edited by E. P. Barr, A.B., M.D., LL.D.; Three Volumes; 1940. London: Baillière, Tindall and Cox; Baltimore: Williams and Wilkins Company. Royal 8vo, pp. 3707, with illustrations. Price: £9 12s. 6d. net.

"The Head and Neck in Roentgen Diagnosis", by H. K. Pancoast, M.D., E. P. Pendergrass, M.D., J. P. Schaeffer, M.D., Ph.D.; 1940. London: Baillière, Tindall and Cox. Super royal 8vo, pp. 1008, with 1,251 illustrations. Price: 69s. net.

"Orthopædic Operations: Indications, Technique and End Results", by A. Steindler, M.D., F.A.C.S.; 1940. London: Baillière, Tindall and Cox. Super royal 8vo, pp. 776, with 322 illustrations. Price: 50s. net.

"Emergency Surgery", by H. Bailey, F.R.C.S.; Fourth Edition; 1940. Bristol: John Wright and Sons Limited. Medium 8vo, pp. 954, with 930 illustrations, many of which are in colour. Price: 63s. net.

"Practical Bedside Diagnosis and Treatment", by H. Joachim, M.D., F.A.C.P.; 1940. London: Baillière, Tindall and Cox. Royal 8vo, pp. 844. Price: 41s. net.

"The Conquest of Bacteria from 606 to 693", by F. A. Taylor, Ph.D., M.A., B.Sc.; 1940. London: Secker and Warburg; Australia: Angus and Robertson. Crown 8vo, pp. 144. Price: 10s. 6d. net.

"A Synopsis of the British Pharmacopœia, 1932, and of the Poison Laws of Great Britain, Northern Ireland and the Irish Free State, including the 1936 Poisons List and Rules"; Thirteenth Edition; 1937; "A Synopsis of the Addendum, 1936, to the British Pharmacopœia, 1932"; 1937; "A Synopsis of the Second Addendum, 1940, to the British Pharmacopœia, 1932"; by H. W. Gadd; 1940. London: Baillière, Tindall and Cox. Demy 32mo, pp. 220. Price: 3s. 6d. net.

"Edinburgh Post-Graduate Lectures in Medicine. Volume I"; 1940. Edinburgh: Oliver and Boyd (for the Honyman Gillespie Trust). Medium 8vo, pp. 529, with illustrations. Price: 10s. 6d. net.

"The Chronicle of Crichton Royal (1833-1936): Being the Story of a Famous Mental Hospital during its First Century and Illustrating the Evolution of the Hospital Care and Treatment of Mental Invalids in Scotland", by C. C. Easterbrook, M.A., M.D., F.R.C.P.E., with a foreword by J. Crichton-Browne, M.D., LL.D., F.R.S.; 1940. Dumfries: Courier Press. Royal 8vo, pp. 663, with 103 illustrations. Price: 25s. net.

"A Guide to Human Parasitology for Medical Practitioners", by D. B. Blacklock, M.D., D.P.H., D.T.M., and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., F.Z.S., F.R.S.E.; Fourth Edition; 1940. London: H. K. Lewis and Company Limited. Royal 8vo, pp. 268, with illustrations. Price: 12s. 6d. net.

"The Action of Muscles, including Muscle Rest and Muscle Reeducation", by Sir Colin MacKenzie, M.D., F.R.C.S., F.R.S.; reprinted from the second edition, with a biographical note by C. V. Mackay, M.D., F.R.A.C.P.; 1940. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 302, with 100 illustrations. Price: 12s. 6d. net.

Diary for the Month.

Nov. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Nov. 27.—Victorian Branch, B.M.A.: Council.
Nov. 28.—South Australian Branch, B.M.A.: Branch.
Nov. 28.—New South Wales Branch, B.M.A.: Branch.
Nov. 29.—Tasmanian Branch, B.M.A.: Council.
Dec. 3.—New South Wales Branch, B.M.A.: Executive and Finance Committee; Organization and Science Committee.
Dec. 4.—Western Australian Branch, B.M.A.: Council.
Dec. 4.—Victorian Branch, B.M.A.: Annual Meeting.
Dec. 5.—South Australian Branch, B.M.A.: Council.
Dec. 10.—New South Wales Branch, B.M.A.: Ethics Committee.
Dec. 10.—Tasmanian Branch, B.M.A.: Branch.
Dec. 12.—New South Wales Branch, B.M.A.: Branch.
Dec. 13.—Queensland Branch, B.M.A.: Annual Meeting.
Dec. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Dec. 20.—Queensland Branch, B.M.A.: Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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